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THE  
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Original Articles.

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ON CONTRARY ACTIONS.

BY PROFESSOR A. PICK (PRAGUE).

I have been occupied for some time with the explanation of a case which deserves the attention of my colleagues on account of its bizarre manifestations, as well as its rarity (though my experience is quite extensive, I have only occasionally seen similar cases, and never any parallel). While the infrequency of such cases alone would be sufficient excuse for this report, I have been led to give the details on account of the recently published observations (the so-called "reversals") of the celebrated Nestor of American Neurologists, S. Weir Mitchell (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, April, 1903). I have been especially influenced by the fact that the symptom is not so little known, at least upon this side of the ocean, as Weir Mitchell assumes, and that the observations already made permit one to go a step further in the classification than this author does. He shows that the condition may manifest itself in two different forms: either the opposite of the thing willed is done, or else, what it was meant to do was done in a way which reversed the usual manner of doing it.

From the following account, however, I think I can show that different factors really underlie those cases, which would belong together if this classification were followed.

On October 5, 1902, Josef Bacovsky, 27 years old, and married, was admitted to the clinic. A medical certificate stated that he possessed no marked hereditary taint; his father was addicted

to alcohol, avoided work and led a vagrant life; with him nothing abnormal was detected until recently. One child was still-born, another died shortly after birth.

Three weeks ago the patient became "melancholic" without cause; he "read all the time," and, though working, he had to be coaxed to do anything. Occasionally he would walk up and down the room without engaging in conversation; he spoke little anyway, and at most would give short answers. Sleep and appetite were good.

On Oct. 2 of this year he went to the city nearby, where he was detained at the tax office on account of strange behavior; he bent himself backward and spoke unintelligibly. Conducted to the police, he sat down, with his hat on and silently stared at the floor. When asked if he had pain in the head he answered that nothing there hurt him; when inquiries were made where the pain was, he said he had headache. To the question, "Have you a wife," he replied in the negative, but asserted that he was married, when asked if single. The purpose of his going to L. he stated was for exchange, though he has nothing to do with papers. In addition, the physician stated that the patient made the impression as if he were asleep with open eyes, and had to be awakened to answer. In the same way he must be encouraged, as it were, to get up, sit or lie down. There was constant tendency to run away, which demanded continuous supervision. Finally he no longer took notice of anything, and was found sitting or lying down or walking slowly up and down the room.

The father-in-law gives the following additional data:

Concerning childhood he only knows that the patient behaved well and learned easily at school. He had two children, which were carried to term, but died soon after birth. He always took good care of his family. Though not very religious he was industrious, economical and of even temper; enjoyed reading, hardly ever visited drinking places, and rarely indulged in beer. On account of anemia he had taken Malaga wine since spring, but only a small glassful daily. Since three weeks there was noticed an increasing loss of interest and distaste for work, and he became very quiet and reticent; he spoke very little, but when forced into conversation, hardly anything abnormal was noticed.

On Oct. 5 he was admitted to the clinic. He lies drawn up in bed, with eyes closed, and offers resistance toward every passive movement. If coaxed to any motion, he always replies, "That should not be"; if, however, told that it "must be," he promptly executes the motion. Simply asking him to carry out a certain movement induces him to do the very opposite, especially if one attempts to force him; thus, instead of lying on the back, he will



roll over on his abdomen; in place of closing his mouth, he will open it.

During a preliminary examination the patient answers slowly, denying everything, occasionally saying the reverse; "What is your name?" "Barzovsky," with harsh, indistinct intonation.

"Have you a Christian name?" "No."

"Then you have no Christian name?" "Yes; Joseph."

"Are you married?" "No."

"Then you are single?" "No, I am married."

Later, when taken out of bed, which succeeds only with the phrases, "that must be," and "that must not be," he becomes more communicative and relates that he served in the army in the "13 Dragoner" regiment, in Polen, that he has been married three years. He knows that he came here in a cab, but does not know where he is, until induced to look around the room, when he recognizes that he is inside of a hospital. He affirms that there is nothing the matter with him, but when asked why he lay in bed so rigidly, he answers he did not lie rigidly. After this he can only be made to reply in the negative sense. The somatic status gives evidence of anemia, and almost complete anesthesia and analgesia over the entire body. The conjunctival, scleral and corneal reflexes are missing almost completely, the tendon reflexes are normal, the plantar reflex absent. When reexamined on Oct. 6, he is calm and well oriented, and the general facts are stated correctly. Infection is denied.

"How did you get along of late at home?" "Well."

"Why did you come here?" "I believed I must say everything reversed."

"How long have you been in this condition?" "In this year, but not in the entire year; but it may be since January."

At home he did the same thing; even when he speaks with his wife he turns everything opposite. It appears to him that this method of speaking is the imperial language, and is of two kinds. This idea came to him because it is common here for one to write both German and Bohemian. He had always thought that everything he said must be turned opposite, but only when he himself spoke. When asked why, he replies, "Because that is an imperial language."

He had not always spoken so, only occasionally, and then his wife told him he was making a fool out of her. Questioned concerning his peculiar behavior in the tax office in Liban, he replied, "Yes; they transacted business there in German, and hence he had done the same thing."

"Why did you go out for wine at that time?" "In order to give it to the officials!"

"How did you come to give them wine?" Smilingly, he answered, "Well, I gave them some."

"Did they take you to the doctor?" "Yes, he gave me some medicine."

"Why did you also speak so peculiarly before the physician?" "Well, because it is the imperial language."

He then related that he lay in bed at home and made applications to his head.

"Did your head feel sick?" "No."

The details of his admission he can describe accurately.

"Why did you reverse what you said yesterday?" "Because I thought it must be so!"

"Why don't you still think so to-day?" He laughs and does not answer.

"Why do you offer resistance toward movements?" "Because I think that must be so!"

"Why do you do the opposite if ordered to open the eyes and extend the arm?" "Because I think that when I close the eyes, I open them, and with all other movements I have the same feeling!"

"Why do you not move when pricked with pins?" "I feel it, but I believe it must be so; it is the imperial language!"

When pointed out that this was nonsense, he stated that he would stop it. The Malaga wine was not prescribed by a physician.

"Why have you no desire to work?" "Because that was an unfavorable planet; because the almanac says so."

He then thinks awhile and continues: "In order to escape the bad enemy; that was for last month, and for this month a better planet is due." His name was not, however, mentioned in connection with it.

"Why do you believe that is meant for you?" "Yes, I believe that refers to me!" (The belief in planets and bad spirits is firmly rooted among the people here, and "drawing planets" is still a lucrative occupation of jugglers at fairs.)

"Why did you run away from home?" "Because I thought it must be so; that it is destiny." This nobody told him, it merely occurred to him. He said he went for wine, but instead, went to the tax-office.

"Had you any business there?" "No."

"Why did you go there?" "I wanted to bring them wine," he answered smilingly.

"What made you infer that you carried wine?" "Because I believed that that is the expression!"

"How did you bend yourself there?" The patient shows this by bending his back toward the physician.

"Why did you keep your head covered?" "Because I thought I had my hat off!"

"Why?" "Because I thought that is the speech of two kinds!"

He also frequently believed that the thoughts were also of two kinds. When he thought of anything he believed he thought of nothing, and something he should not have done he did anyway. When asked for an explanation he gives the following example: When supposed to load up the plough, he placed it down first, then loaded it up; he believes that he must do it so; he knows that he is in the lunatic asylum and that he was brought here because he was not considered sane. When asked what he himself thought of this, he laughs and, somewhat embarrassed, says, "Oh, yes!" smilingly he affirms he would not act like this now; now everything has disappeared, even the "imperial language;" that vanished already in the evening. He then relates quite correctly he did not suffer any want, and had not been sick, only somewhat anemic; he always was pale.

When again questioned on Oct. 7 concerning his peculiar behavior, he said it was caused by the imperial language, and this is of two kinds; it is a fundamental language, because the foundation of every man is recognized by it; he knows this, and has observed that it is so; thus German and Bohemian are the official languages, and yet the soldiers belong to the emperor; they are thought to be not good, and yet they are so.

Oct. 11. He behaves very quietly, answers in monosyllables with a slight smile, and still believes in the imperial language.

Oct. 13. He did not want to eat last night, and was very sad because his wife did not visit him; also inquired for a priest. When asked why he was so despondent, he said smilingly that the doctor knows this, too, for he had studied a good deal.

Oct. 14. The left side of his face is contracted and distorted, the left eye closed, the left angle of the mouth raised; he says he cannot open the left eye, but when one closes his right eye he opens the left; induced to read, he reads some things correctly, others reversed; thus, instead of "long" he reads "short," instead of "evening," "morning"; he also writes in this way; his name he writes "Padzousky"; asked what the P means, he says "D"; K he also interprets as D; asked what his name is, he says "Dlouhy." When he is asked to read the name of a male in the advertisements he reads it as the name of a female, etc. Wherever he finds a negative he omits it or substitutes a more forcible affirmative, while positive statements he often reads correctly, and only sometimes converts them into negative ones. He smiles frequently while reading, and keeps the left eye firmly closed.

Oct. 15. He appears at the cross-examination with closed left eye. At first he does not react when spoken to, later he answers.



"Do you know the examiner?" "No."

"Hence you do not know me?" "Yes, I know you!"

"Then you do not know me?" "Yes, I know you!"

"Do you always behave so?" "No."

"Then you do not always act so?" "Yes!"

He thus answers to everything in this same, reversed fashion.

"Are you Bacovsky?" "Bazovsky!"

"Joseph?" "Hojo—Joseph!"

"How old are you?" "Twenty-six."

"What are you; housekeeper?" "No; peasant!"

"Where?" "In Kopidlno!" (wrong).

"Have you children?" No answer.

"Will you answer? Can't you?" "Yes!"

"Is that the imperial language again?" "I did not do that!"

"Does that happen from itself?" No answer.

When asked to get up, he does so promptly. When told to write to his wife, he composes a short, accurate letter. A physical examination to-day shows that the analgesia has disappeared and that only hypesthesia has remained; the mucous membrane reflexes of the bulb are active.

Oct. 20. Seems quiet and well-balanced; does not work. He does not grasp objects the wrong way, but still holds the left eye shut. On seeing that a fellow-patient simulates illness and carefully falls out of bed, he imitates him later. When called to account, he simply smiles.

Oct. 23. He is brought to the cross-examination with closed left eye. On wishing him a good morning, he says, "Bad!"

"What is your name?" "Parzovsky Hojozef!"

"How old are you?" "Twenty-six years."

"Do you know the examiner?" "No."

"You don't?" "Yes."

"Do you speak the imperial language?" "No."

"You don't?" "Yes."

"How do you come to be here?" "I don't know!"

"Why did you come here?" He stated he was brought here in a carriage; he did not know by whom or why. His general behavior to-day is the same as before; almost all negative questions are answered in the positive, and all positive questions in the negative.

Oct. 30. He appears with closed left eye. After wishing him good morning, he replies, "Bad."

"How do you feel?" "Poorly."

"Why poorly?" "Because!"

"Have you had company?" "No."

"Was nobody here?" "O, yes."

"Who was here?" "I don't know!"

"Was your brother-in-law here?" "No!"

"Your brother?" "No!"

"Then you will stay here?" "No!"

"Then you won't stay here?" "Yes!"

All questions requiring a negative response are answered in the affirmative, and vice versa. When asked to give the hand, he first considers the matter; when asked to give the right hand, he gives the left, and vice versa. Asked for his name he says he is called Barzovsky Hojosef; he also reads his name in the same way when written correctly.

Oct. 31. Suddenly speaks spontaneously to the doctor; he would like to go away and write home; he now speaks as usual, the imperial language he has not to speak any more. Immediately after he writes a correct letter home, and attention must be drawn to the sentences, "I feel well," and "Perhaps it must be so," which occur in it.

Nov. 1. His facial expression is calm, he speaks quietly and intelligibly. He does not know the reason for his former behavior; perhaps it must be so—his conscience led him to it. Nobody told him he should act so, but he frequently had dreams that somebody was choking him, and hence his conscience was not satisfied. When asked why he always kept one eye closed, he smiles, avoids answering at first, and seeks excuses. He does not know, and is not aware why he always spoke so peculiarly.

Questioned why he stopped suddenly yesterday, he replies, "It stopped of its own accord!"

"Why did you do such things?" "Why, that is an inspiration (here he used two words which both mean inspiration), that probably comes from heaven, and yesterday it simply stopped."

Before his sickness he did not have this, it only appeared since January. At that time it only occurred by itself; it was only after the fall that this inspiration became more active.

Asked what he thought of it now, he smiles and replies: "I don't know; that came of itself!"

Nov. 6. Appears very sad the entire day; he would like to go home. Questioned why he always spoke reversely, he always seeks excuses, and sometimes smilingly states he does not know.

Nov. 10. He was examined as follows: "Why did you reverse everything?" "Because that goes after the alphabet!"

When asked to go into details, he says, "That wasn't turned opposite, that was correct."

"Why did you close one eye?" He smiles, looks around, and at first does not answer; then he replies, "Because the sword hangs on the left side; that is 'commis'" (meaning military).

"Why did you call yourself formerly Barzovsky?" "I always said Bazovsky!"

"Why did you always reverse everything?" "I did not speak!"

"Why did you behave so peculiarly at the tax-office?" "I did not think anything of it. I did not harm anybody by it!"

"Why did you reverse everything you said?" "Perhaps that was correct!"

"Why did you call the ordinary language imperial?" "Because one speaks so!"

From this time on his behavior is the same, and he was discharged on Nov. 16, 1902. According to his father-in-law he has behaved normally until now, a half year later. (Everybody who has had occasion to make observations upon the uncultured patients from the country, will appreciate why we obtained insufficient data as to the cause of the patient's peculiar behavior, despite careful direct cross-examination.)

From the patient's detailed and in part verbally recorded answers, I believe that we are not dealing with imperative ideas, like in the majority of published cases of this kind, but with a condition dictated by the delusion of a higher influence. Patients of this low degree of education, suffering from imperative ideas (I would like to emphasize that despite the older authors, these cases are not so very rare), generally express themselves differently; in patients of a better education, it may occasionally be difficult to detect the imperative idea, and only a small percentage directly complain of their thoughts, which frequently are of the sacrilegious type; others will ascribe everything to a temptation of the devil, or something similar. The mention of an "inspiration" always suggests a paranoiac condition, which is always hallucinatory or combining, or not rarely, corresponds to what Wernicke has recently called "autochthonous ideas." These will explain the delusion that the ideas are inspired (see Wernicke, "Gundriss d. Psychiatrie," p. 108), and further than that, patients of this kind will frequently imagine that they have no will of their own, that they must do as those who influence them wish. ("A power has been working within me, so that I must do as the spirit wills."<sup>1</sup>)

The constant national dispute going on in this country (two languages being employed in the public offices), and its influence upon the army (the "army language" as related to the "national

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<sup>1</sup>Compare an observation of Griesinger. "Die Pathol. u. Therap. der Psych. Krankh." 2d edit. 1861, p. 246.

language") has developed to a certain extent the subacutely appearing delusions. Many of the patient's remarks referred to these contradictory conditions, which must be held responsible for his contrary behavior.\*

It remains to be seen what relation the peculiar physical symptoms, suggestive of hysteria, bear to this psychical symptom-complex. Some manifestations of our patient's illness suggest negativism, but it hardly requires further argument to prove that we are not dealing with what now is classed under katatonia or dementia præcox.

It has been mentioned at the beginning that there are a number of cases in literature which, from outward appearance, coincide with the case just detailed. Since the number of those that have come to my knowledge is still very small, I will shortly recapitulate them here.<sup>2</sup>

In the psychiatric section of the *Naturforscherversammlung*, 1874, Meschede (*Correspondenzblatt der deutschen Gesellschaft für Psychiatrie*, Vol. xx, 1874, p. 173)<sup>3</sup> reports an anomalous condition in the mechanism of voluntary motion; it consisted in a forced movement which was always carried out in a direction the opposite of the one intended. This phenomenon appeared only when the patient himself intended to move or when he was ordered to do so by someone else. For instance, if the patient desired to look toward the left, the eyeballs did not follow the corresponding movement of the head, but turned actively toward the opposite, the right direction, and vice versa. The same antagonism appeared when the patient attempted to look upward; both eyeballs were immediately lowered. During convalescence the patient emphasized that the volitional movements of the entire body were carried out like those of the eyes, in a direction opposite to the one desired.<sup>4</sup> A very clear and detailed description of the patient

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<sup>2</sup>For the sake of completeness I will mention that Paulhan in his work: "*L'activité mentale et les éléments de l'esprit*," 1889, also discusses the pathological symptoms in his chapter on contrast association.

<sup>3</sup>The report in the *Zeitschrift f. Psychiatrie*, Vol. 31, p. 711, corresponds verbally with the one above.

<sup>4</sup>In 1875 while I was voluntary assistant at the nervous clinic of Westphal, I made a similar observation on a male patient; I referred to my colleague, Remak, who was assistant at the clinic at that time, but he does not remember the case.



closed with the following words: "I did not do this because of my physical condition to desire to do what I should not, but in spite of my intention to obey." In discussing the phenomenon, Meschede looks upon it as an anomaly of volitional movement which is independent of disturbances of conception or emotion, since the patient wills but cannot carry out his will on account of an interfering motor reflex which not only inhibits the desired motion but causes it to be executed in the opposite direction. Meschede emphasized the difference between this and actions (the text has it "forced actions"), done under the influence of delusions or hallucinations; also the distinction from forced movements resulting from gross lesions of the brain.

Breuer and Freud (*Neurologisches Centralblatt*, 1893, p. 6), explain the following case on the basis of a "hysterical will to the contrary": A very ill child has finally fallen asleep; the mother uses all her will power to remain quiet and not wake the child; in consequence of this intention she makes a smacking noise with her tongue. This is repeated later, on some other occasion when she also desired to deport herself very quietly, and thus a tic develops in the form of a smacking of the tongue, which for many years accompanies every excitement.

Seglas ("Lec. clin. s. l. mal. ment," 1895), discusses cases under imperative conceptions in which the imperative conception stands in direct contrast to the individual tendencies of the person in question. What is described by Raggi as "psychical contrast" is thus brought about. As for example, a girl is cited who remarked of herself, "Plus je voulais me faire religieuse, plus il venait de ces idées contraires, sc. rêves du monde, de fêtes, d' aventure romanesque?" He then refers to the impulses of blasphemy, associating themselves with corresponding uncontrollable ideas; finally he cites cases where patients must do the opposite of what they intended. He quotes a case of Raggi (*Arch. ital. per le mal. nerv.*, 1887)<sup>5</sup> referring to a man nineteen years old who already in youth exhibited a marked contradictory spirit. He developed a pronounced neurasthenic condition with agoraphobia and imperative ideas after over-exertion. Sometimes there was a direct compulsion to contradict everything and to deny the

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<sup>5</sup>I could not gain access to the original paper of Raggi, and hence cannot go into details.



most evident things, such as the sound of a bell, the color of an object. He himself realized the absurdity of his behavior, but could not help himself; what bothered him most, however, was that he sometimes had to contradict himself, as when he wanted to express something and said the very opposite. In the proper sequence the condition known by the French as *allocinésie* must be mentioned. It is observed only in hysteria; on request a certain motion is carried out correctly but with the opposite extremity (see note on *Allocinésie* by Paul Blocq in the *Dictionnaire de physiologie*, t 1, fasc. 2, 1895.) Mendel (*Neurol. Centralbl.*, 1898, p. 10) discusses the importance of contrary ideas in the genesis of fixed ideas. "The association of the contrary gives rise to the conception that the opposite of the desired action was done, that instead of 'Yes,' 'No' was written down," etc.

Pitres and Régis ("Les obsessions et les impulsions, 1903, p. 74) complete the observations of Verga, Krafft-Ebing," upon impulses of blasphemy, by cases of their own. They also verify the observation of Löwenfeld ("Die Neurasthenie," 1894), that neurasthenics occasionally complain that they say the opposite word to that desired; they explain this by the contrary association occurring in persons "*à automatisme cérébral prédominant comme les obsédés.*"

De Sanctis ("Fenomeni di contrasto in psicologia," 1895, cited after Janet) applies to such cases the law of contrary association. He explains this as follows: A certain forced exercise of the faculty of attention inhibits and removes the idea to which it is directed, and thus favors the contradiction and the predominance of the contrary association. Janet ("Les obsessions et la psychasthenie," 1902, p. 116) recognizes this explanation as correct, but draws attention to the fact that with scrupulous people these contrary phenomena are not always primitive, spontaneous manifestations, but are sought for and willed by the patients themselves. Janet (*loc. cit.*, p. 167) remarks further that while with many psychasthenics the conception of the opposite merely forms the contents of the imperative ideas, with others these ideas prompt to execution. As example he mentions the case of a patient who was annoyed by the fear of being awkward, so that instead of grasping the object, his thumb was bent in. Later, when this developed into a tic, he was no longer able to write.

To the short account of these cases must be added those of Weir Mitchell which, as they were published in the April number of this JOURNAL, do not require recapitulation. If all the histories are reviewed, we find that the cases may be divided into two classes, as Weir Mitchell has done in the article cited at the beginning of this paper; those in which there are disturbances of conception and the conception of the contrary involuntarily leads to contrary action<sup>6</sup>; and, secondly, those in which the disturbance seems to be purely motor, and in which the reverse motion is substituted for the desired one. The first class, however, permits of further subdivision, depending on whether a delusion or an imperative idea is at the bottom of the condition. My own case corresponds to the former, while apparently most of the others in literature have some imperative idea to account for them. In the third and fourth of Weir Mitchell's cases contrary conception is the underlying cause, yet they occupy an intermediary position in as far as the symptoms of sensory apraxia (or agnosia), manifesting themselves chiefly as mind blindness, play the chief rôle; thus disturbances of conception are here present as well. These are followed by the above-mentioned category of cases, in which the disturbances are purely on the motor field. Cases of disturbances in mimics, such as are already known to the older literature of psychiatry, form the transition to these; here the patients, instead of denying, affirmed, or vice versa. That this superficial connection will be followed sooner or later by a more thorough understanding, is explained by the fact that we have discovered a mimic center in the optic thalamus and its connections. Since Liepmann has applied the name motor apraxia to these cases, we have begun to analyze them with a better understanding, and they no longer appear so mysterious as formerly. It seems to me as yet impossible to explain the phenomena of contrary motions and actions from this point of view, but for the present I consider it necessary to emphasize it here.<sup>7</sup>

Weir Mitchell adds to his observations just discussed, certain others, which in part correspond to what has recently been called mirror-speech (French: *Parole en miroir*). I do not care to go

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<sup>6</sup>The condition known as *parapraxia* belongs here, and requires a passing mention. It appears occasionally as a result of fear and may lead to contrast actions.

into details, however, since I am not in the position to add cases of my own to those already published; but simply would like to close with a few general remarks upon these cases and upon those where the disturbances are upon the motor field. I would like to refer to the fact that cases of mirror-speech also belong under the heading of aphasia as a result of gross lesions of the brain, so that they also stand in close relation to the class of paramimia just discussed.

Yet many other phenomena are explained by the more recent researches in nerve-physiology and pathology. Since the well-known experiments of Sherrington have made it probable that frequently an impulse leading to a motion is accompanied by an inhibition of the antagonistic mechanism, it seems likely that certain motor disturbances are best explained by a disturbance in the proper relation between impulse and inhibition, as in the case of a simple contrary movement where, instead of the intended flexion of the arm, an extension occurs, and vice versa. Instances of transition forms are not wanting. I will only refer to the case of De Buck (Abstract. Journ. de Neurol., Sept. 20, 1899), where the following remarks concerning the patient's severe disturbance of motion are made: "*Une des premières causes de ce fait reside dans la contracture intentionnelle. Tout mouvement volontaire s'accompagne en effet de rigidité dans le membre utilisé. Cette contracture semble ici se confondre avec des mouvements de substitution, car quand la malade devrait porter un membre dans une direction donnée, on voit la contracture surgir dans les muscles antagonistes et contrarier jusqu'à un certain degré l'exécution du mouvement voulu.*"<sup>8</sup> This phenom-

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<sup>8</sup>In my article, "Zur Psychologie der Motorischen Apraxie," (Neurolog. Centralbl., 1902, No. 21), I have referred to the better understanding which may be gained in cases of apraxia, difficult of interpretation, from the observation and auto-description of functional cases. The same thing may be asserted concerning the phenomena described above. Subsequently I find an important observation in Seguin's article (JOURN. OF NERV. AND MENT. DIS., 1881, p. 537), which forms a connecting link between contrary actions and motions; it is the more remarkable since it referred to a case of gross cerebral lesion: "a singular symptom which annoyed him for several months, viz.: a tendency to reverse the natural position of objects which he handled, such as table-knives, spoons, pencils, canes, etc. He immediately recognized his mistake, however, and corrected them, but always spoke of the inclination as irresistible."



enon obviously corresponds to the one first described by Nothnagel and Hitzig, and later termed by Senator "motion by substitution," as where, for example, a hemiplegic innervates the triceps instead of the biceps. The law of typical associated motions will also explain certain phenomena; we know, for example, that when there is a disturbance in the associated movements of the eyeball and the upper lid, the latter will retract instead of following the eye-ball when this moves downward (even in cases which have nothing to do with Basedow's disease). The dissociation of the normally conjugated deviation of head and eyes, as in Meschede's case, may depend upon a similar cause. I have recently found this interpretation confirmed in a footnote in Gowers' "Manual of Diseases of the Nervous System," 3d edit., vol. 1, p. 542. He says: "I have once met with a remarkable reflex fixation of the eyeballs in a case of advanced progressive muscular atrophy. If the patient, looking to one side, was suddenly told to look at an object on the other side, his head was instantly turned toward the second object, while the eyes remained fixed on the first by a movement corresponding to that of the head, but in the opposite direction, and then after a few seconds they were slowly moved toward the second object. The phenomenon continued to the end of the patient's life. As I pointed out in an account of this curious condition (*Brain*, vol. 1<sup>9</sup>), it is interesting evidence of a normal reflex mechanism in the fixation of the eyes; this was, as it were, isolated by disease which lessened voluntary control over it."

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<sup>8</sup>Compare the observations of De Buck (*ibid.* p. 14) upon *parakinesiae* and their explanation from a "rupture entre les centres kinetiques et la sphere d'ideation." I would also like to refer here to the paradoxical and not rarely directly opposite motions seen in certain occupation neuroses as in writer's cramp.

<sup>9</sup>I did not change the wording of Gowers, but the account is found in *Brain*, Vol. II, p. 39.

A CASE OF APHASIA WITH LOSS OF MEMORY OF NOUNS,  
(SENSORY ANOMIA) WITH AUTOPSY.

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*Introduction.*—The expression "naming center" has been used in describing cases of aphasia with loss of memory for nouns. The term was first suggested by Broadbent in 1872. In evidence of the existence of such a center a case of tumor involving the under surface of the temporal lobe, and particularly the third temporal convolution, was reported by Dr. Mills.<sup>1</sup>

Collins<sup>2</sup> refers to optical aphasia, but criticizes the psychology of Broadbent's conception and attacks the value of Mills' case.

A somewhat similar form of trouble was described by Freund, in 1899, and called by him optic aphasia. In optic aphasia the patient, when an object is presented, can recognize it, knows its use and property, but can not give it the name. When, however, he touches, tastes, or smells it, he can pronounce the name. Starr<sup>3</sup> prefers to call conditions of this kind "intercortical sensory aphasia." In such type of aphasia the patient is (*a*) unable to recall the name of a thing seen, or (*b*) to picture to the mind the appearance of a thing named, yet the name is recognized when heard and the object is recognized when seen. There is, theoretically in these cases a lesion of the association tract which connects the temporal and occipital lobes.

J. Vorster<sup>4</sup> reports a case of optic and tactile aphasia, and gives the history and literature of so-called optic aphasia. He collects also brief observations of eight cases that have been reported by others. A study of the cases shows that while bearing a general resemblance, in that things seen can not be named, there are a good many differences in the extent of the amnesia and in associated symptoms. Pure optic aphasia is certainly rare. There is often more than optic and tactile aphasia.

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<sup>1</sup>Mills: "The Nervous System and Its Diseases," 1898 page 345.

<sup>2</sup>Collins: "The Faculty of Speech," page 287.

<sup>3</sup>Starr: "Organic Nervous Diseases," page 466.

<sup>4</sup>Vorster: Archiv. f. Psychiatrie, 1898, Vol. XXX, page 341.

In the case we are to report there was optic-tactile-gustatory-olfactory- and sound-aphasia, and, on the other hand, an object named gave rise to a visual image which the patient recognized. So that it was neither a pure optic, nor an intracortical optic aphasia.

*History of Case.*—Summary: Male, 48; syphilis fifteen years before, illness of three years; no paralysis, some mental dullness, no paresis, aphasia with inability to name objects seen, felt, heard, tasted or smelled; voluntary speech good, ability to understand good; softening of first temporal cortex and subcortex on left side.

Morris E., aged 48; pedlar; born in Russia.

*Family History.*—Father died at age of ninety-three, mother at 40; cause unknown. Had healthy sisters, and two healthy children. Three children died in infancy. No miscarriages.

*Personal History.*—Fifteen years ago had a tumor in the back of the neck which was removed three years ago. Is a moderate drinker and excessive smoker. Fifteen years ago had luetic infection, with secondaries. Treated with inunctions and internally.

*Present Illness.*—About three years ago and three weeks after the operation on his neck he noticed some pains in the neck and weakness in hands and feet, chiefly in the right hand and left leg. He had some difficulty in urination, some constipation, some headache and sleeplessness, but no paresthesias. A few months ago, owing to dysuria, sounds were passed, causing urethral fever. On admission he complained of weakness in right hand and left leg, constipation, some difficulty in urination, poor appetite, poor sleep, poor memory, inability to express himself correctly.

*Status.*—Patient is well built, well nourished, of healthy color. Gait shows a limp, the left leg being used like a wooden leg, that is without flexion at the knee. Mental condition is dull and apathetic, speech shows aphasia which will be described later.

Examination of motor system shows some nystagmus on looking to the right. Pupils slightly irregular, equal, moderately wide, direct reaction sluggish, consensual absent, accommodation and convergence reaction present. Left side of face somewhat better innervated than right. Movements of head painful, but not limited. Motor power of right arm diminished. No atrophy, Motor power of left leg diminished, also of the right to some extent. Reflexes of the arms are increased in left, diminished in right. Mechanical irritability shows some slowness in the left, and exaggeration in the right. The epigastric reflex is lively. Abdominal reflex diminished. Cremasteric reflex lively. Gluteal



and interscapular reflexes diminished. Knee-jerks lively, especially left. Achilles jerk increased. Plantar lively on both sides and flexor response. Easily exhausted ankle clonus. No tremor. Some ataxia of station is present.

*Sensation.*—No hyperesthesia. On the left lower thorax there is some hyperalgesia, and some on the right anterior surface of the trunk. The right arm is hypalgesic, so also are the extensor and flexor surfaces of the forearm, the dorsal surface of the hand and wrist and the first phalanges. From the interscapular space downward to the gluteal region there is analgesia of both sides. Deep sensibility, shows normal sense of position, normal imitation of position, normal pointing to direction of part examined.

No distinct limitation of visual field. Sense of smell impaired considerably on the left. Bone conduction slightly impaired on both sides. Palate and pharyngeal reflexes normal. Mentally the patient is dull and somewhat silly, but shows no distinct dementia. The most noticeable condition is his aphasia. This is characterized by the following points:

1. The patient can talk voluntarily and on being questioned.
2. He can repeat spoken words.
3. He can copy, but never could write well.
4. He has forgotten the names of some things seen, but can explain their use. Thus, looking at a clock he says it is something with which to tell the time. He cannot give the name of things felt, as for example, money, but he can tell what it is indirectly by paraphrase. He cannot tell the name of things smelled or tasted or heard. He recognizes the nature of all these objects.
5. He understands spoken words and tunes.
6. Can sing certain Hebrew prayers.
7. Can read printed words.
8. Can call to mind objects named.
9. Can read aloud and understand.
10. Can recall objects whose names he has seen.
11. Can repeat names of things mentioned.

Special questions show the condition better, for example:

Q. What is that (book)? A. "Holt." Q. What is that (cap)? A. What a man wears on his head. Q. What is that (paper)? Answer correct. Q. What is that (handkerchief)? Illustrates its use. Q. What is that (scissors)? A. What a man cuts with. Q. What is that (bottle)? A. What a man drinks with. Q. What is that (candle)? A. What one uses for light. Q. What is that (soap)? A. What one uses for washing. Q. What is that (knife)? Answer correct. Q. What is that (money)? Answer correct. Various other objects, such as a penny, bread, sugar, spoon, fork, apple, watch, he is unable to name, but can tell the use. Tested with salt on his tongue he cannot tell what it is; the same with sugar. When money is put in his hand he recognizes its nature, also that of knife and pencil.

In all the tests it was found that the patient was able to describe an object and its use, but was unable to find the name for it. Once in a while he showed some paraphasia. He understands all directions given to him.

To sum up, then, it would seem that the patient has a fairly good vocabulary, and can talk spontaneously, using a good many nouns, though he is sometimes at a loss for them. His speech is sometimes paraphasic, but there is no jargon aphasia. In asking him to name things, however, he is almost always at fault, and he cannot spontaneously or through the help of any sense except



Fig. 1.  
Showing areas of softening in frontal and temporal lobes.

hearing and sight (i. e., reading) name an object. He can, however, read the name aloud if written, and can repeat the name if he hears it spoken. He can sing. He understands what is said to him. He can read words, syllables and letters, also numbers. Thus because he cannot name an object if he tastes, smells or feels it, he can, however, name it if he hears the word (i.e., he can repeat). The capacity to write is present, but it is difficult to speak of it positively, because he could never write well. As far as he can write, it is voluntary, and he can also copy and write to dictation. The uses of things are recognized by him; he has no apraxia.



Up to the time of the death of patient the condition remained altogether stationary. The described disturbances of speech varied in intensity. The motor phenomena were quite bizarre at times—making one occasionally doubt the organic nature of the disease. The patient died suddenly from cardiac paralysis, the cause of which was found on post-mortem examination to have been due to syphilitic thrombosis of the papillary muscles, with acute dilatation.



Fig. 2.

Transverse section through 1st, 2d, and 3d temporal convolutions, showing extensive superficial loss of 1st temporal, and small area in 3d temporal.

The *Record of Autopsy* by Dr. J. R. Hunt is as follows :

The anterior and middle cerebral arteries were atheromatous, and showed extensive sclerosis, but there was no thrombosis. Upon the internal surface of the left cerebral hemisphere there were to be seen three distinct patches of superficial softening. (Fig. 1.) One of these, and the largest, involved the posterior third of the first temporal convolution, extending into the lip of

the Sylvian fissure. The area of the softenings measured about two c.m. antero-posteriorly by two c.m. vertically. Measuring the total length of the first temporal convolution it was found to be 10 c.m., and the lesion lay between  $7\frac{1}{2}$  and  $9\frac{1}{2}$  c.m. from the tip; that is, in about the middle of the posterior third of the first temporal. The second superficial point of softening lies a little anteriorly to the middle third of the second frontal convolution. The third and smallest spot of softening lies on the inferior surface of the first frontal. These are all indicated in the photograph.

A section was made vertically directly through the center of the temporal lobe lesion, as shown in photograph (Fig. 2), and the extent of the softening could there be seen to be not very considerable. A block of the temporal convolution intersecting the whole of the softened part was removed and hardened in Müller's fluid and alcohol. Sections of it were prepared. These sections showed an extensive softening of the cortical layers of the convolution, this being more marked as we pass into the lip of the Sylvian fissure. The parts below the gray matter show the presence of connective tissue. In the third temporal convolution just below the level of the lesion in the first, there was found a small spot of subcortical softening about one c.m. in diameter. The microscopical examinations, so far as localization and determination of the pathological character are concerned, revealed simply the presence of a secondary softening due to obliterating endarteritis involving the cortex and some of the white matter of the areas as indicated in the figure.

The other two areas of softening were smaller and slighter in degree. The brain and medulla were normal and showed no trace of any central lesion, old or new.

*Anomic Aphasia and the question of a Naming Center.*

There has been a great deal of discussion, but I doubt if there is any very essential difference of opinion, regarding the nature of that type of sensory aphasia associated mainly with the inability to name things. The term, "naming center," it is agreed is rather an unfortunate one. The larger number of names, or nouns, used in speech, are not names of things that we see or feel with our hands. Thus, in reading a page of a medical article by a well-known neurologist, I find ten names of concrete objects and persons, and thirty-three names of things which have some quality, that is non-objective, such as area, paralysis, symptom, and so on. Now, the names of things we see are learned by repeatedly connecting the sight with a special sound, and we

finally never see an orange, for example, without being able to arouse a center in the auditory area which is connected with the center for articulatory speech. By feeling, smell, taste, we are also able to stimulate speech by this route. That is to say, the sensory stimulation goes, as a rule, first to the auditory center where the word was learned, and then through it to the articulatory center itself. Thus, in naming concrete things, we bring into play association tracts which reach from the optic or tactile area, olfactory or gustatory center to the auditory, and then to the speech centers.

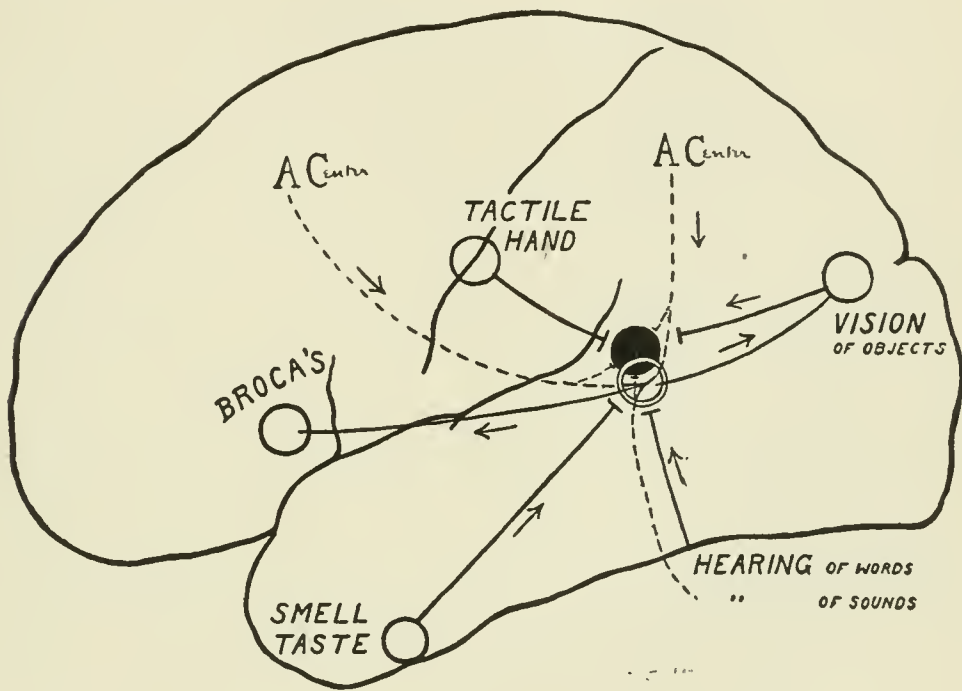


Fig. 3.  
Diagram to illustrate case of sensory anomia.

But perhaps two-thirds of the names we know, viz., the names of abstract things, are stored away among more or less complicated association tracts; when we wish to speak them, as when we say the word "symptom" or "justice," impulses from widely distributed association tracts, converge on the auditory center in persons not deaf or dumb; then are sent to the articulatory center. In ordinary normal persons the name of a concrete object no doubt brings into play mainly the optic and auditory areas first, but deaf and dumb persons would bring into play tracts which

pass from the visual areas to perhaps the tactile areas, and thence to the gesture centers—a very different language mechanism than that of the normal man, for to the deaf-mute the name of an object is associated with muscular and tactile activities. The sight, for example, or odor, of an orange, in a deaf and dumb man, would arouse images first in the visual and gustatory centers and then pass to the Rolandic area where the gesture movements originate, and thence perhaps again to the center for the expression of the deaf and dumb alphabet. Thus, even for concrete names, there would not be any naming center common to all kinds of persons.

Even in learning the names of the abstract words of simple type, such as governor, king, business, money,—the localization and mechanism would be different from that involved in using terms more complicated, such as justice, right, anger, etc.; and it seems unlikely that there is a specially localized mechanism for such a process, except that the association activities from various areas go first to the auditory center and then to the articulatory.

The naming of concrete things, however, is a simpler and more specific process than that of the naming of abstract terms and probably involves a simpler and more localized machinery; hence it is that in ordinary aphasic lesions there is a loss of ability to name the concrete nouns more often than that of other nouns, since the machinery for the latter process is more diffused through the association centers. Thus, in an injury to the speech zone, we would expect that the capacity to name concrete things would be lost first, while we still remember the names of abstract qualities.

In the so-called sensory aphasia, with loss of ability to name concrete things, then we have not so much direct injury of a naming center as one of an associative mechanism connecting those parts of the visual and auditory areas, which are usually employed in normal individuals in naming these things.

Perhaps the term anomia is as good as any, however, to indicate all forms of sensory aphasia with inability to name concrete objects. When this inability is confined to objects seen, it is an optic anomia (or aphasia); and when in addition the patient can not name things felt or heard or smelled or tasted, it is a total sensory anomia. When it is confined to vision and touch, it is an



optic and tactile anomia, as is Vorster's case. These are clinical terms and are the safest to use. Our own case comes under the head of a total sensory anomia, because excitation from hearing noise, seeing, touching, tasting or smelling could not arouse in him impulses that enabled him to name the exciting object though he knew its nature. On the other hand excitations from the association areas in the processes of thought or of feeling did call up the name; and so did excitation of the auditory area when the name was pronounced. (He could repeat the word "bell," but he could not say the word "bell" when the bell was rung.)

We may infer from this that he had the idea of the word "bell" still stored away in his cortex; and speaking anatomically, we would call this a "subcortical aphasia."

All of these sensory anomias are probably usually subcortical, or intracortical, as these terms are commonly used; yet in our case the cortex as well as some of the subcortical tissue was destroyed. One of the writers (Dana) thinks that practically these terms are apt to be misleading and are difficult to apply in clinical work. It seems possible that often parts of certain cortical centers are destroyed and parts left intact. This view is illustrated in the diagram. That part of the auditory center concerned in receiving and transmitting impressions from visual, tactile and other special sense areas to the articulatory center is destroyed and the impulses to it blocked as indicated. On the other hand, conceptions of words from association centers (A.C.) and the sound of a word from the auditory apparatus arouses more easily the memory of the name and it is spoken. Voluntary naming in ordinary speech and the repeating of spoken words are simpler and easier mental processes, than the deliberate naming of an object seen or felt. The pathways and centers are perhaps more numerous and diffuse and not so easily blocked or destroyed. When one part is destroyed they can shift to another as indicated in the diagram.

Hence these anomias may be subcortical in their anatomical basis or "partially cortical."

There are various types of completeness of sensory anomia such as optic, optic and tactile, total, but the simple term sensory anomia will answer for the ordinary purposes of clinical description; nat-

urally some motor anomia goes with all severe forms of motor aphasia, and is only a part of it.

*Conclusions.*—

1. There is no special center for naming. There is an important station in the sensory mechanism for naming concrete things, and it lies in the first and second temporal convolutions, and this is a center for sensory anomia.

3. Sensory anomia is a form of aphasia characterized by inability to name things seen, and often things heard, felt, tasted, or smelled. Its especial character can be indicated in particular cases, by the terms optic, optic and tactile, etc.

4. The use of anatomical terms such as cortical and subcortical to indicate psychological processes is not a very practicable or rational procedure; and it would be better to drop the words cortical and subcortical in describing aphasias. In the present case there was what would be called a subcortical aphasia with a lesion mainly cortical.

## BONY SENSIBILITY.<sup>1</sup>

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In his *Sémiologie du Système Nerveux* Dejerine<sup>2</sup> dwells at some length upon the method of detecting the bony sensibility described by his assistant, Egger.<sup>3</sup> Egger found that if a tuning-fork in vibration were placed upon any part of the body where the bones were near the surface, a peculiar feeling of thrill was perceived. If placed on the soft parts, as over the belly of a muscle, this sensation is no longer felt. This sensation is apparently not carried on by the vibrations of the bony structure, but by the intermediary of the nerves, and is not propagated to other parts of the bone unless very strong. Sano<sup>4</sup> suggested the necessity of distinguishing between this thrill and the auditory sensation conducted to the cochlear nerve through the bone, but the two sensations are so absolutely different that the caution seems unnecessary. Dr. C. J. Blake has also suggested, in conversation with a colleague, that this form of sensibility was merely a manifestation of the bony conduction of sound, against which, if further proof were needed than the difference of the two sensations, it would be at once afforded by the fact that in several cases I have found a notable hypesthesia of the ulna when the radius on the same side was normally sensitive.

In point of fact, when the tuning-fork is set in vibration and the base of the fork is applied on any spot where the bone is not covered with much soft tissue, a number of distinct sensations are normally perceived—the sense of contact of the fork, a sensation of cold, the perception of the sound of the fork by the ear, and a peculiar feeling of vibration, the true sensation from the bone, which the average patient likens to an electric shock. Egger states that sometimes, when the true bone sensation is diminished, the application of the vibrating fork may give a sensation of heat, a fact which I have observed in one or two instances.

Through a misunderstanding, when I first began testing the sensibility I believed it necessary to use a large fork of low pitch, as low as  $A_2$ , with 26 vibrations a second. This is not adapted, however, for delicate testing, and Egger recommends the tenor C ( $C_0$  with 128 vibrations a second, bass C of Gowers<sup>4</sup>). In this way, by comparing corresponding regions, we can often detect a diminution in the bony sensibility, but even this method fails in the detection of slight defects in sensibility. The best method is to use forks of various pitch. For this purpose a set of five or six C forks is desirable, ranging from contra C ( $C_2$  of 32 vibrations a second) to C in altissimo ( $C^4$  of 2,048 vibrations a second). With diminution of bony sensibility the vibration of the higher-pitched forks is not felt, and in this way we can compare the sensibility of corresponding regions and obtain a relative idea of the diminution.

In normal conditions the sensitiveness of the bone seems to vary merely with the thickness of the soft parts that cover it, or, in other words, it is dependent upon the closeness of contact with the vibrating fork. Other things being equal, we find no variation in sensitiveness between different bones as we do between different areas of skin. Normally vibrations of the treble C fork ( $C^2$ , 512 per second) are usually the highest that can be perceived, although I have found some persons who can detect the vibrations of C in alt. ( $C^3$ , 1,024 per second, supra-treble C of Gowers). If middle C ( $C^1$ , 256 per second) can not be felt it should be regarded as abnormal. Egger has found some cases of bony hypersensitiveness, where C in altissimo ( $C^4$ , 2,048 per second) could be felt; and I have also observed this in a few cases.

Clinically the bony sense may be diminished by disease affecting all parts of the nervous system—injury to the peripheral nerves, tabes, syringomyelia, syphilitic spinal paralysis, cerebral hemorrhage and hysteria. Diminution of bony sense does not seem to have any necessary connection with disturbances of other forms of sensibility. I have found it most frequently associated with diminished tactile sensibility, and occupying the same area. In several cases of injury to the ulnar nerve, for example, the bony sensibility was diminished in the phalanges and metacarpals of the ring and little fingers, and along the ulna for a varying distance.



In hemianesthesia from cerebral hemorrhage, with loss of sensibility for pain, touch, temperature, motion, position, localization, and the stereognostic sense, the bony anesthesia followed the typical distribution of the tactile sense, being greatest in the distal portion of the limb, and diminishing upwards towards the trunk.

Although the loss of bony sensibility often coincides with loss of tactile sensibility, yet the two do not necessarily go together. In tabes it often happens that tactile sensibility may be preserved, except perhaps in some small area, while there is extensive loss of bony sensibility. I have also found this to be true in syphilitic spinal paralysis. In one case the sensibility to touch and pain was perfect, except for a small area on the abdomen; the localizing power was good, but the sense of position and movement were much impaired, and the bony sensibility was much diminished below the waist, especially in the pelvis and thigh bones.

On the other hand there is no necessary relation between the bony sensibility and the other forms of deep sensibility. In a case of paresis of the right leg, following a fracture of the skull, with injury to the brain substance, the sensibility to touch and pain and the bony sensibility were normal, but there was great impairment of the sense of motion, position and localization. Our tests for the various forms of muscular sense are still too unsatisfactory to enable us to determine whether loss of bony sensibility may exist when the muscular sense is perfectly normal, but the case just cited shows that bony sensibility may be normal when the muscular sense is greatly impaired.

On the whole, therefore, bony sensibility seems to be an independent form of sensibility, having no necessary relation to other forms of sensibility. The course of the fibers that convey this form of sensibility is uncertain. The sensibility is conveyed to the cord by the peripheral nerves, as the cases cited show. Egger thinks that the fibers then ascend uncrossed in the gray matter. He has found bony anesthesia on the same side as loss of muscular sense in Brown-Séquard's paralysis, and he thinks that the existence of bony anesthesia in syringomyelia indicates that the sensory tract is in the gray matter. This seems a little doubtful, as bony anesthesia may exist in a great variety of diseases of the cord.

The great variety of affections in which bony anesthesia may

occur makes its clinical significance rather slight. The chief significance of the symptom seems to be that it throws some new light upon the development of arthropathies and spontaneous fractures in tabes and syringomyelia, as showing the sensory condition of the bones and their insensibility to injury, and also as indicating that one more sensory factor must be taken into account in studying the physiology of coördination of movements.

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<sup>1</sup>Read by title at the meeting of the American Neurological Association, May 12, 13 and 14, 1903.

<sup>2</sup>Bouchard. *Traité de Pathologie Générale*, v. 884.

<sup>3</sup>*Journal de Physiologie et de Pathologie Générale*, i, 511, May, 1899; *Revue Neurologique*, x, 549, June 30, 1902.

<sup>4</sup>*Journal de Neurologie*, N. F. 1901.

## OPTIC NEURITIS OF UNKNOWN ORIGIN.<sup>1</sup>

BY HOWELL T. PERSHING, M.D.,

OF DENVER, COLO.

In the great majority of cases double optic neuritis is caused by organic intracranial disease, most frequently by tumor. In almost all of the remaining cases the cause is a general infection or intoxication. The number of infections and toxemic states that may possibly cause optic neuritis, without intracranial disease, is large, but this symptom is rare in any of them except uremia. If inflammation of the optic nerves does occur in uremia or in any of the infections it is generally accompanied by retinitis. A similar neuro-retinitis with hemorrhages is occasionally seen in the severe forms of anemia.

Some local diseases outside the cranium seem, very rarely, to cause optic neuritis in a way not as yet understood. Thus coarse disease of the upper part of the spinal cord, tabes, suppuration of the middle ear and even suppression of menstruation, have been included in the list of causes. Finally, as one of the following cases will show, intense double optic neuritis, such as is most characteristic of tumor, may occur without any other disease, local or general, being found to account for it.

In each of the following cases the original diagnosis of tumor or abscess, based mainly on the presence of optic neuritis, was wrong; they are therefore reported in the hope that they may contribute to an accurate estimate of the significance of this very important symptom.

Case 1. Some years ago at the request of Dr. John Chase, of Denver, I examined a young man, far advanced in pulmonary tuberculosis, whom Dr. Chase was treating for a purulent discharge from the right middle ear, doubtless tuberculous in origin. Headache with chills, fever and vomiting had raised a question as to the existence of intracranial inflammation, and on finding double optic neuritis, of moderate intensity, worse on the right

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<sup>1</sup>Read at the meeting of the American Neurological Association, May 12, 13 and 14, 1903.

side, I diagnosticated cerebral abscess. Operation was not recommended on account of the general condition and the absence of localizing symptoms. The ear improved very greatly under appropriate treatment, the headache and optic neuritis subsided and, without the development of other cerebral symptoms, the patient died some six months later of pulmonary tuberculosis. Looking backward it seems most likely that the optic neuritis was caused by the aural suppuration without the intervention of a coarse intracranial lesion.

Case 2. Miss P., aged twenty-nine, was seen in February, 1902, in consultation with Drs. Alfred Mann and E. W. Stevens of Denver, to both of whom I am greatly indebted for details of the case. The patient was always delicate; a tendency to pulmonary diseases and suppuration of the right ear date from infancy. In 1898, at twenty-six years of age, repeated pulmonary hemorrhages caused a change of residence from Canada to Colorado, and great improvement followed. In the summer of 1899 there was some headache, which Dr. Stevens completely relieved by correcting refraction. The eye-grounds were then normal. Pulmonary hemorrhages occurred again in 1900, during and after a visit to Canada. In the summer of 1901 Dr. Stevens was treating the right ear and the suppuration had ceased. In July vision in the right eye failed rapidly, and intense optic neuritis, with hemorrhages scattered throughout the retina, was found. There was no pain, dizziness or nausea, and the urine was normal. The left eye was normal. Pulmonary hemorrhages again occurred. Four weeks after the affection of the right eye optic neuritis was observed in the left eye. Gait, station, reflexes and subjective condition were normal. The general condition was elaborately studied by Dr. Mann, assisted by several other physicians. The urine, in particular, was thoroughly and repeatedly examined with negative result. The swelling of the nerve heads reached three diopters, but mercury and potassium iodide seemed to cause improvement. In September the late Dr. Eskridge saw her, and a diagnosis of tumor was made, the treatment being discontinued. In the meantime suppuration of the right middle ear had started afresh. In January, 1902, vision had fallen to light perception, and mercury and iodide were resumed with considerable benefit.

I found the patient, in February, rather anemic but well nourished, her weight being greater than ever before. Speech and mental condition were perfect. There was no subjective disturbance whatever. Motion, general sensibility, stereognosis, the tendon reflexes, and the Babinski reflex were normal. Opacity, due to retinal hemorrhages, prevented an examination of the eye-



grounds. The patient was able to read very coarse type with great difficulty.

In view of the lapse of time and the absence of confirmatory symptoms, we all thought that the diagnosis of tumor must be abandoned. Taking the preceding case and the few similar cases in the literature into consideration, in the absence of any better explanation, we came to the conclusion that the aural suppuration might be the cause of the optic neuritis. Dr. Stevens accordingly did a thorough operation on the mastoid cells and tympanum. Improvement in the eyes began at once and continued steadily. The patient, who has returned to Canada, writes that she sees to read and write practically as well as ever, and that her general health is good.

Case 3. Miss M., aged sixteen, first examined March 16, 1899. Her father died, at about fifty, of some form of paralysis; otherwise the family history was good. She had been generally healthy in infancy and childhood, but at nine had both scarlatina and diphtheria, and at eleven suffered a mild attack of chorea. She had menstruated first in the preceding August, and again in December, but not afterward up to the time of examination. February 21, 1899, being apparently in perfect health, she did about an hour's work at school with the microscope, and immediately afterward complained of some pain in and about the eyes. This pain persisted, and two weeks later she consulted Dr. Wiest, of Longmont, Colo., who found vision in the left eye only 20-80, and referred her to Dr. Chase, of Denver. Five days later Dr. Chase found intense left optic neuritis with vision reduced to light perception; there was also a beginning optic neuritis in the right eye. For two days at this time there was some headache with nausea, and there was one spell of vomiting. There had been no diplopia, and mental symptoms had been entirely absent. Thinking it probably a case of intracranial disease, Drs. Wiest and Chase placed the patient in my care. I found the left pupil dilated and without light reaction; there was intense optic neuritis, the disk being swollen three times its normal diameter, its veins large and tortuous and buried here and there in exudate; there was a hemorrhage in the upper nasal quadrant; vision was limited to light perception. In the right eye the pupil reacted fairly well, there was optic neuritis of moderate intensity and vision amounted to 4-25. The patient's general appearance, facial expression, color and nutrition were excellent. Mental condition and speech were perfect. There was no motor defect except a slight weakness of the right ankle, which was only occasionally noticeable. The knee reflexes and Achilles reflexes were normal and equal on the two sides. Cutaneous sensibility was normal.

Smell, taste, hearing and the drum membranes were normal. Lungs, heart and circulation perfect. Urine clear, of full quantity and specific gravity; no albumin; no sugar. There was no fever.

The gravity and obscurity of the case compelled a careful consideration of even remote possibilities. Uremia was excluded by repeated chemical and microscopic examinations of the urine and by the continued absence of characteristic symptoms. There was no reason to suspect poisoning by lead or any other metal. Alcohol was not used. Anemia was manifestly out of the question. No attack of influenza or other acute infectious disease had preceded the optic neuritis. Syphilis, both acquired and inherited, was carefully considered from every point of view, and was excluded as certainly as it can ever be. Even the exceedingly remote possibility of a menstrual disorder having some causal relation was considered, but there was nothing to indicate that menstruation was not being normally established. In view of all these negative features and the intensity of the optic neuritis, a cerebral tumor was thought to be the cause, and an unfavorable although carefully guarded prognosis was given. Mercurial inunctions and potassium iodide were administered in full doses.

The diagnosis and prognosis were happily not confirmed. In ten days the inflammation of the left nerve was apparently subsiding, and vision in that eye had risen to counting fingers at three feet. But the nerve of the right eye was more swollen, and vision had fallen to counting fingers. From this time there was steady improvement in both eyes, the left surpassing the right. In six months the disks had entirely cleared and, although they seemed rather pale, vision in each eye was practically perfect as to acuity, colors and field. The case was carefully observed at regular intervals for more than a year, and reports have been received from time to time since. A few weeks ago the patient was still in perfect health. At no time has anything occurred to confirm the diagnosis of tumor or to throw any light on the question of cause.

As to the first and second cases, I think it quite probable that the aural suppuration had some causal relation to the optic neuritis, but such cases are too few to permit of any confident opinion as to the mode of origin. As to the third case, I can form no definite opinion of the cause that has any degree of probability. Even the supposition of an unknown toxic agent is not free from objection, for any symptoms other than the optic neuritis which might be attributed to intoxication were limited to about two days and could be otherwise accounted for.

## Society Proceedings

NEW YORK NEUROLOGICAL SOCIETY.

October 6, 1903.

The President, Dr. Pearce Bailey, in the Chair.

*Partial Paralysis of the Platysma Myoides following Typhoid.*—Dr. Edwin G. Zabriskie presented a girl of seventeen, a cigarette-maker by trade. Following an attack of typhoid fever five years ago a sinus formed in connection with the lower jaw on the left side. On coming under observation recently it was found that there was paralysis of the left platysma myoides, and that this muscle failed to respond to electrical stimulation.

*Extirpation of Gasserian Ganglion for Neuralgia.*—Dr. William Hirsch presented a woman who had been operated upon one year ago for the relief of trigeminal neuralgia by the removal of the Gasserian ganglion. Microscopical examination showed that the ganglion had been completely extirpated. The neuralgia had been completely relieved. There was no analgesia anywhere. Remak claimed that one result of paralysis of the trigeminal nerve was a pushing of the lower jaw over towards the affected side, associated with partial subluxation. This patient showed only a slight deviation. In this woman the perception of a sweet taste was somewhat uncertain, that for sour was lost, and the taste for bitter was perverted. The electrical reaction of the muscles on the affected side was perfectly normal, but the effect of the current as regards taste had not been noted.

*Congenital Multiple Angiomata.*—Dr. M. Abrahamson presented a boy of fifteen years, born in Russia after a very prolonged labor. He was cyanotic at birth, and was resuscitated with difficulty. When two months old the mother first noticed a small mass behind the left ear; another appeared on the left side of the neck when two years old, after a fall. Since then new ones had appeared. Epistaxis had been frequent, but there had been no hemorrhages from the other mucous membranes. There were a number of these swellings, or angiomata, notably in the tongue and lip. There was an angioma in the retina of the right eye. There were apparently no angiomata in the liver and spleen. This boy showed both of Virchow's types—cavernous and fissural. The course of the disease in this case was not in accordance with any of the theories that had been advanced to explain such cases.

*Hysterical Gait.*—Dr. William M. Leszynsky presented a boy of eleven years who had been born at full term by forceps without suspended animation. He had never had convulsions. He seemed perfectly well up to nine months ago, when he began to bend forward when walking. When first seen, on March 9, 1903, his general health was found to be good. The knee-jerks were unobtainable, and the limbs became rigid in various positions. No evidence of organic nervous disease was discovered, and a few days later the knee-jerks were elicited. He was discharged after 16 days, walking perfectly well, but he was re-admitted to hospital in July in a condition similar to the original one. The speaker believed at first that the attitude was imitated, and that subsequently it became a habit. Although the boy walked in a doubled-up position with the head almost touching the floor, he could hang upon a horizontal bar without special difficulty. When in bed he lay like other children. There were no objective sensory



disturbances of hysteria. For want of a better name it was called a case of hysteria. This habit had persisted, and remained even when he was not observed. There was, of course, exaggeration and a certain element of simulation.

*The Movements of Superior Intercostal Muscles in Hemiplegia, and the New Hemiplegic Symptom.*—Dr. L. Pierce Clark presented this paper. He said that Gowers expressed the generally accepted opinion regarding the respiratory movements in hemiplegics when he said that in ordinary respiration the two sides of the thorax moved equally, but that in extraordinary respiration there was often less expansion on the paralyzed side. In 1895 Hughlings Jackson stated that in hemiplegics the superior intercostal movements were greater on the paralyzed side during ordinary or automatic respiration, whereas in forced respiration the movement was greater on the sound side. The speaker said that he had examined with regard to this point 161 cases of hemiplegia, with the result that this sign was found to be uniformly present. In destructive lesions of the internal capsule causing hemiplegia, the cortical inhibitory control over the medullary respiratory center of the paralyzed side was largely destroyed, and, accordingly, the inhibited medullary center acts excessively in automatic respiration. The experiments of W. G. Spencer demonstrated the presence of an inhibitory center situated just outside of the olfactory tract, anterior to its junction with the temporo-sphenoidal lobe, and of an acceleration center apparently located in the posterior portion of the sensory-motor area of the cortex. The location of the inhibitory center would lead one to expect it to be damaged in vascular lesions, especially of the middle cerebral, affecting the integrity of the capsular fibers. The fact that the superior intercostals of the paralyzed side were innervated through cerebral fibers ending on spinal centers in the anterior horns of the cord, and the more or less marked damage of the same would account for the general motor loss of volitional acts on the hemiplegic side. The respiratory center could be demonstrated in all muscles bilaterally susceptible of both automatic and volitional movements.

*The Advisability of Supplementing the Words Degeneration and Degenerate by Deviation and Deviate.*—Dr. G. L. Walton, of Boston, presented a paper with this title. The definitions given by a number of well-known writers were cited to show that a degenerate was one exhibiting certain deviations from the normal type. The words "deviation" and "deviate," therefore, seemed to him to be more accurate, and less objectionable because independent of all theories. Referring to the hereditary aspects of the question, attention was called to the tendency of similar parents to produce inferior degenerates and of dissimilar parents to produce beings superior to their immediate ancestors. The term "degenerate" he would limit, so far as possible, to the lowest grades of constitutional defect, and avoid altogether the anomalous term "superior degenerate."

Dr. Hirsch said that about ten years ago he had himself pointed out the apparent misuse of the term degenerate. The definition which he had given at the time of degeneration was, "a mild development of the psychical organ." The term, superior degenerate, was not originally applied in the way in which it was referred to in the paper, i.e., a degeneration of a less degree, but rather that the higher faculties of certain individuals were degenerated. The word "deviation" unfortunately was not one which could be used internationally, and this, in itself, constituted a serious objection to its adoption, although there could be no doubt about the term being superior to degeneration.

Dr. C. L. Dana said that he was very much in sympathy with the purpose of this paper, and that his own views regarding degeneration



did not differ very much from those of the author. He understood that Dr. Walton wished to continue the use of the term degeneration in connection with somatic changes. About eight years ago, in an address before the Academy of Medicine, the speaker said he had defined a degenerate as "one who differed from the average standard of the family from which he sprung," and suggested that there were two classes of degenerates to whom the term could be applied without any implied opprobrium. One of these was the class spoken of in the paper as the "superior degenerate." He thought the term "variation" could be very properly applied. He was of the opinion that in the superior degenerates and in the inferior degenerates, and in the imbeciles, and even in the higher types there was a degenerative tendency in the germoplasm, and that the family was very apt to die out.

Dr. B. Sachs thought that if degeneration were too severe a term, deviation was too mild a term, for it could not be looked upon as representing anything morbid. After all, the only objection to the term degeneration, was in its application to the so-called superior degenerate, and the vast majority of the persons to whom the term degenerate had been applied showed a distinctly downward tendency.

Dr. Joseph Collins said that the substitution of terms suggested by the author of the paper did not seem to him a wise move, but an effort to incorporate those terms into medical literature to express certain conditions often included under the terms degeneration and degenerate, should be encouraged. Because some of the indecent newspapers saw fit to use the term degeneracy merely as a synonym for moral profligacy, and particularly sexual perversion, was no reason for the scientific world to feel called upon to change this term. Even in scientific circles it seemed to him that the term degenerate was used altogether too frequently. He believed that the usual tendency in both superior and inferior degenerates was downward from the normal moral standard, and that this notion was rightly reflected in the definitions quoted.

Dr. Edward D. Fisher said that his understanding of the term degenerate carried with it the idea of a departure from the normal standard, although there were possibly other forms of degeneracy in which the moral aspect did not enter. The term deviation seemed to him entirely inadequate.

Dr. Walton, in closing, emphasized the fact that it was intended not to displace degeneration, but to furnish a synonym which might prove useful. He saw no harm in the milder word sometimes being used to include the more severe, just as delinquent was meant to include criminal. He agreed with Dr. Sachs that deviate was too mild a word to supplant degenerate, and this was not his intention. If no objection were made to substituting deviate for superior degenerate, the ground would be practically covered. He agreed with Dr. Collins in deploring the elaboration in literature of the individual moral deviations, but this tendency could not be prevented. If we could limit our use of these terms to scientific circles, the word degenerate, as understood in those circles, would satisfy all requirements, but the subject had now become a matter of general interest.

*A Case of Cerebral Diplegia, or So-called Muscular Pseudo-hypertrophy.*—Dr. Nathan reported this case. The patient was a large, well-developed boy of ten years. On standing, there was decided lordosis. When lying down, he was apparently unable to raise himself. There was good power in the hands, and the thighs could be flexed without difficulty. He walked with the typical spastic gait. The knee reflexes and the electrical reactions to both currents were exaggerated. The mental development was nil, largely owing to neglect. The case differed from those of pseudo-hypertrophy in infantile paralysis previously reported, in several respects.

This was the only case on record, so far as known, in which pseudo-hypertrophy occurred in a case of so-called spastic spinal paralysis; all previously reported cases were hemiplegic. There were no athetoid movements in this case. The measurements showed that besides the pseudo-hypertrophy there was enlargement of the left thigh and arm.

Dr. L. P. Clark said that the condition had not been first described by him, as stated in the paper, but by Bernhard about twenty years ago. Gowers had reported a number of cases about one year later. The case reported here was evidently quite rare. Athetoid movements were noted in only about one-half of the cases, and neither this nor spasticity was sufficient to account for the cases, because this was also frequently absent.

Dr. C. L. Dana said that he did not think the diagnosis could be made solely upon the large calves, because this was frequently present in diplegics.

Dr. B. Sachs said that he quite agreed with the last speaker regarding the enlargement of the calves, and suggested that the only positive way of making the diagnosis would be by excising a piece of muscle and demonstrating the characteristic changes.

Dr. J. Collins said that if the contention were that pseudo-hypertrophic paralysis with spasticity had not been recognized, he would say that during the summer there had been in his clinic a case of typical pseudo-hypertrophic paralysis in which the spasticity was apparently as great as in the case just reported. Although there was profound spasticity, particularly of the adductors, there was no exaggeration of the knee-jerk, and no Babinski sign—in other words, there were no indications of disease of the pyramidal tracts. The case had been looked upon as a peculiar form of obesity before coming to the clinic.

Dr. Nathan said that it had not occurred to him that there was any doubt about the diagnosis. The history was typical of cerebral paralysis. The child was born asphyxiated, and had convulsions repeatedly up to the seventh year. He began to walk when three years old, and had always walked with difficulty. The only symptom of pseudo-hypertrophic paralysis was the enlargement of the calves. It was interesting to note that the left side was larger than the right.

## THE PHILADELPHIA NEUROLOGICAL SOCIETY.

October 27, 1903.

The President, Dr. H. A. Hare, in the Chair.

*Hereditary Chorea.*—Dr. W. W. Hawke presented a paper on this subject. The patient, a white male, aged thirty-eight years, was admitted to the Insane Department of the Philadelphia Hospital, April, 1903. His father had been an inmate of the same institution a few years previously, suffering from traumatic organic mania following the kick of a horse; shortly after the accident chorea developing. A paternal uncle died in the same institution at the age of forty-seven; this patient had dementia, and chorea developed about the time his mental symptoms commenced. Another paternal uncle had chorea and died insane. The patient's mother is living and well. He has had three children. One died at the age of nine years from "fits" after a short illness. The others are living and well. His symptoms began two years ago with twitching of the fingers and a tendency to become abusive. He acted foolishly. At present he is quiet but not melancholiac. He has general marked choreiform movements in the arms and legs and also in the face. The knee-jerks are increased. He has a spurious ankle-clonus. The pupils are slightly dilated. Eyegrounds are negative. The heart is negative. There is no history of rheumatism.

*A Case of Primary Neuritic Atrophy.*—This patient was exhibited by Dr. F. X. Dercum. He was a male, single, twenty-eight years of age, an insurance collector by occupation. The father is living and well. The mother suffered from epilepsy for a number of years. A paternal uncle had paresis. From the age of eighteen to twenty-nine years the patient used alcohol excessively. A venereal history is denied.

He dates the onset of the present trouble eight years ago. He had a chill followed by fever, and was sick about a week, but remained at home for about six weeks. This attack was followed by weakness in the limbs, requiring him to hold on to something when walking. Later he improved and was able to work for about two months. He was then obliged to give up his occupation on account of the difficulty in walking. He also complained of some shooting pains in the legs. He never had trouble with the sphincters. He has wasting of the legs below the knees and possibly some of the thighs, also wasting of the thenar and hypothenar eminences of the right hand. He also has scoliosis. A marked degree of ataxia is most distinct in the legs, but is also present in the arms. The reflexes of the lower extremities are absent, and those of the arms impaired. He has no sensory loss except a slight retardation of sensation. He has slight facial inequality. He has a distinct nystagmus. He shows no mental derangement. The eye report is negative. The nerve trunks seem to be more readily felt than they are normally.

Dr. A. Gordon remarked that he had some time ago exhibited a similar case of primary neuritic atrophy. That case presented many points similar to the one shown tonight. The symptoms began with neuralgic pain. The muscular atrophy in the peroneal group was very marked. The knee-jerks were lost. There was Argyll-Robertson pupil and also bladder involvement.

In the case shown tonight the onset at the age of fifteen years, the lost



knee-jerks, the marked ataxia, the speech defect and the marked nystagmus would suggest the possibility of Friedreich's ataxia. The onset, the atrophy of the limbs and the peroneal atrophy favor the idea of primary neuritic atrophy.

The occurrence of nystagmus and of speech defect indicate that the primary neuritic atrophy as described in the text-books is rarely met with. The disease could more properly be named spinal-neuritic atrophy, because in association with the purely neuritic symptoms we also have spinal symptoms. Whether the initial lesion is in the nerves or in the spinal cord cannot be decided even with the pathological data.

Dr. William G. Spiller remarked that this was certainly not a typical case of the progressive, interstitial, hypertrophic neuritis. The symptoms in that disease are so striking that it is impossible to make a mistake in a typical case. He had examined the specimens from the first case of this disease reported by Dejerine and Sottas. He also had seen the brother of that patient and later had seen another case of the same disease in the service of Professor Dejerine.

Dr. F. S. Pearce said that this patient had reported at the Orthopedic Hospital some ten years ago. He was then considered a case of ataxia. The speaker thought that it was a case of Friedreich's disease. The patient denied having had syphilis. He said that he had had a severe attack of malaria, and that shortly after this the symptoms developed. This would suggest the possibility of malarial poisoning being the exciting cause of the disease.

Dr. F. X. Dercum remarked that the history was not that of Friedreich's disease. The disease was not hereditary. The man gave a history of a distinct febrile attack followed by neuritic pains and atrophy. Dr. Dercum was inclined to consider the case one of primary neuritic atrophy.

*Some Graphic Observations on Ankle Clonus.*—This paper was read by Dr. A. A. Eshner.

Dr. Charles K. Mills raised the question as to whether or not the movement produced by voluntary effort, as by standing on the ball of the foot, was a true ankle clonus. He regarded it as a movement of the entire leg.

The President remarked that according to the charts the reinforcement of the so-called clonus seemed to be characterized by an increase in the speed rather than by an increase in the excursion. In a true reinforcement he thought that the excursion would be increased rather than the speed.

Dr. F. S. Pearce asked whether or not in the experience of the author the rapidity of the clonus was in proportion to the spasticity of the patient.

Dr. A. A. Eshner said that in the paper he had expressed a doubt whether the movement obtained in a healthy person on supporting the weight of the body on the ball of the foot was a true clonus. The fact that under such circumstances, the movement is in the leg rather than in the foot is of little relevancy. It is the flexion of the leg on the foot; the leg moves on the foot because the former is free, the latter fixed. In the presence of ankle clonus the movement is the same, only the foot, being free, is flexed. In each instance the movement is the same, though the procedure is reversed.

With regard to reinforcement, Dr. Eshner had made a large number of observations before he could convince himself that any change could be induced in the frequency or the range of movement by extraneous causes. Finally he did observe that there seemed to be a change on attempts at reinforcement. To the hand, this seemed to be an increase in intensity, although in the tracings it appears as an increase in frequency. The failure to show in the tracing an increase in amplitude might be due



to mechanical reasons, the movement of the patient's foot being restrained by the hand of the examiner or otherwise in the process of obtaining the clonus. It is possible that the greater the vigor of the clonus, the greater the pressure of the hand, so that the difference would not appear in the tracing as a change in amplitude.

Dr. Eshner had not studied the cases from the point of view suggested by the question of Dr. Pearce. He was not able to say whether the amplitude or the frequency bore any relation to the spasticity of the case.

*A Case Resembling One of Progressive Spinal Muscular Atrophy.*—Dr. C. S. Potts exhibited a patient, a man aged forty-nine years, a stone-cutter by occupation, who had never used liquor. A year ago, he noticed weakness in the left leg, manifested by a tendency to stub the toe and difficulty in getting the toe off the ground. Six months later, he noticed weakness in the right arm.

Examination shows the movements of the right arm to be impaired. The muscles most affected are the deltoid and biceps and possibly the triceps. In these muscles there is atrophy and a marked fibrillary tremor. Fibrillary tremors are also present in the corresponding muscles on the left side, but they are not so marked. At times, there is a violent painless cramp in the right biceps. In the left, the impairment of movement is most marked in the tibialis anticus and peroneal groups. There is no atrophy in the muscles of the leg, the circumference of the left leg in fact being greater than that of the right. The tendon jerks in the right leg are diminished. In the arms, the biceps jerk is present, but the other tendon jerks can not be elicited. There are no sensory symptoms. The electrical reactions are about normal. There is no weakness of the left arm or right leg.

The symptoms suggest both progressive spinal muscular atrophy and pseudo-muscular hypertrophy, the latter being suggested by the fact of the muscles of the affected leg being apparently better developed than those of the other. A dystrophy beginning at the age of forty-eight years would, however, be most unusual. Also the fibrillary tremors seen in the atrophied muscles of the arm are much more violent than are usually seen in cases of progressive spinal muscular atrophy. The symptom-group is certainly most unusual. No positive diagnosis has been made.

Dr. Charles K. Mills said that the case in some of its features seemed to be unique. Being unique, it is difficult to fix a pathology. The idea of myopathy suggests itself, but there are points against this view. It certainly is not a myelopathy of the ordinary type. He had never seen a case in which this peculiar form of cramp and local spasm occurred. It might possibly be a form of chronic poliomyelitis with irregular location of the lesions, in the lumbar cord on one side, and in the upper cord on the other, but even to this view there might be objection. It might possibly be an unusual form of gliosis of the cord affecting the ventral region.

Dr. F. X. Dercum suggested that pieces of the muscles be excised for microscopical examination.

*Tabetic Symptoms in a Girl of Seventeen, Presenting from Infancy a Brachial Monoplegia, Probably of Poliomyelitic Origin.*—This paper was read by Dr. A. Gordon. The patient, a girl, now seventeen years of age, at the age of eighteen months had an attack of fever and vomiting, followed by paralysis of the right arm. She remained well until three years ago, when the present trouble began with weakness in the left leg, with numbness in the thigh and leg, and especially in the sole of the foot. There was a continuous ache in the left leg and some lancinating pain. A year ago, the right leg became affected. There was also girdle-pain, some disturbance of micturition and weakness of vision.

The right arm is wasted and paralyzed. The right lower extremity is apparently normal in size, the left thigh is reduced. There is diminished response to the faradic and galvanic currents. Station is normal. The knee-jerk is lost on the left, and very much diminished on the right side. Objective sensation is diminished on the left side. Subjective sensation is more marked. There is marked weakness and numbness of the left leg, a sensation of tightness in the left lumbar region, imperative micturition and unequal pupils. The speaker expressed the opinion that this was probably a case of juvenile tabes.

Dr. Charles K. Mills considered the view well taken that this was a case of juvenile tabes with hereditary syphilis as its origin. He did not see any connection between the poliomyelitis and the juvenile tabes. They seemed to be a chance concurrence in the same patient. It may be that the etiology of the two conditions was the same.

Dr. A. Gordon said that he could not state positively that the poliomyelitis and the tabes bore the relation to each other of cause and effect. He reported the case as a curious example of these two diseases occurring in the same patient. Progressive muscular atrophy and amyotrophic lateral sclerosis have been reported as following acute poliomyelitis of infancy, but tabes has not yet been observed following this disease.

*A Case of Solitary Tubercle of the Pons, with Paralysis of Associated Lateral Movement of the Eyeballs Toward the Left.*—This case was reported by Dr. C. S. Potts and Dr. William G. Spiller. The patient was a man aged fifty-five years. The symptoms were: Weakness of the right arm and leg; and of the left side of the face, excepting the orbicularis palpebrarum; weakness of the muscles of mastication on the left side, with fibrillary tremors of these muscles; weakness of the left external rectus, with the loss of the power of associated movement of the eyes to the left, but with preservation of the power of convergence; diminution of the sensation of touch, pain, heat, and cold in the right arm, leg, side of the trunk, neck, occipital region, and ear; astereognosis and loss of the sense of position on the right side; diminution of the sensation of touch, pain, heat and cold on the left side of the face and head; slight loss of the sensation of heat and cold on the right side of the face; anesthesia of the conjunctiva, mucous membrane of the nose, mouth and tongue on the left side; deafness in the left ear and loss of the sense of taste in the left anterior half of the tongue; and some ataxia of both legs, most marked in the right. A tuberculoma involving the left side of the pons, but not invading either sixth nucleus, was found at the necropsy.

*Three Cases of Injury of the Lower Spinal Cord, or Cauda Equina.*—Dr. T. H. Weisenburg reported these cases. The first was that of a man who was struck by an engine and had paralysis of both lower limbs. At the present time, twenty months after the injury, the patient shows wasting of the buttocks and of both lower extremities, more marked on the right side. The weakness is greater on the right side, but the man can walk. No movements are possible in either ankle joint, and there is bilateral foot-drop and a typical steppage gait. Sensation is not normal. The patellar jerks are much exaggerated, ankle clonus is persistent, and Babinski's sign is obtained on each side. The bladder and bowel functions are normal. The lesion is placed in the anterior horns and between the 4th lumbar and 3d sacral segments, from where the muscles of the peroneal region are innervated. This region of the spinal cord has been named by Minor the epiconus. No similar case has been recorded by English or American writers.

In the second case a bullet entered at the 5th lumbar vertebra and its course was downward. There is a resulting paresis of the flexors of the

right foot, and hypesthesia for touch and pain in right lower limb, corresponding to the distribution of the 2d, 3d, and 4th sacral segments. Both patellar jerks are increased. The Achilles jerks and Babinski sign are absent. Four similar cases have been found in the literature, where a lesion below the reflex arc caused an increase of the patellar tendon reflexes, but no special attention is placed upon this phenomenon by any writer. It is probable that some of the exito-motor fibers for the patellar reflexes exert their influence upon the segments above that in which they arise.

The third case was that of a man who fell one hundred and twenty feet, sustaining a fracture and dislocation of the 12th thoracic and 2d lumbar vertebræ. The right lower limb was paralyzed, and all the reflexes were absent, i.e., patellar and Achilles jerks and Babinski's sign. At the present time, three months after the injury, there is much restoration of motor function, the tendon reflexes are still absent. There is hypesthesia for touch and pain over the whole right lower limb, while on the left side there is hypesthesia for touch and pain only over the scrotum and penis. This form of the Brown-Séquard syndrome is possible only where the lesion is unilateral and is low in the spinal cord. Here the sensory fibers from the lower limbs have not as yet decussated, and therefore sensation and motion are disturbed in the same limb, while the sensory fibers supplying the scrotum, penis and perineum have decussated. Only one similar case has been found in the literature, that of Wernicke, afterward more fully detailed by Mann.

Dr. W. G. Spiller, referring to the first case, said that he had been much interested in the case for one or two years, because it is so exceptional to have steppage gait from spinal cord disease. This usually is a result of neuritis, and, as a rule, alcoholic neuritis. This man had a history of injury of the spinal cord. We must assume that only the gray matter of the fifth lumbar and first and second sacral segments was affected because bladder and rectal control was still present. The white matter had escaped. The knee-jerks were present and exaggerated, so that the lesion could not extend above the fourth lumbar segment. He did not know of a similar case in American or English literature. The only cases reported have been in Germany, and the area of the cord affected has been described as the epiconus. In the case reported by Dr. Weisenburg sensation was disturbed only over the dorsum of the feet and the outer side of the legs.

With regard to the second case, Dr. Spiller said that he had been waiting for some time to see an instance of exaggerated patellar reflexes from a lesion below the reflex arc. In this case there seemed to be little doubt as to the site of the lesion, as the bullet entered at the fifth lumbar vertebra and went downward as shown by the X-ray; yet this man had exaggerated patellar reflexes.

*A Note on Section of the Fifth Nerve for the Relief of the Pain in Some Cases of Brain Tumor.*—A note on this subject was presented by Dr. Charles K. Mills and Dr. C. H. Frazier. The authors suggested that in some cases of brain tumor, when the tumor could not be removed, the atrocious pain might sometimes be relieved by section of the fifth nerve. The main general symptoms of brain tumor are severe head pain, vertigo and vomiting. These symptoms are probably referable in most cases to irritation of the fifth nerve in the dura. This suggestion had been followed out in one case by Dr. Frazier with apparent success, as the pain has entirely disappeared.



## Periscope.

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DEUTSCHE ZEITSCHRIFT FÜR NERVENHEILKUNDE

(Vol. 23, 1903, Nos. 1, 2.)

1. Disturbances of Motion in Complete Anesthesia of an Arm as a Result of Stab-Wound of the Spinal Cord, with Remarks upon the Doctrine of Coördination and Ataxia. A. STRÜMPPELL.
2. Epilepsy. M. BIRO.
3. The Relation of Some Reflexes in Healthy Persons and in Tabes, with Remarks upon the Early Diagnosis of Tabes. J. KOLLARITS.
4. Contribution to the Knowledge of Myasthenia Gravis, with the Discovery of Cellular Foci in Numerous Muscles. R. LINK.
5. Innervation of the Cucullaris Muscle. SCHULZ.
6. Paralysis in Epidemic Cerebrospinal Meningitis. J. SCHMID.
7. Chorea Mollis Sive Paralytica with Changes in the Muscles. W. RIND-FLEISCH.
8. Clinical and Statistical Data upon the Symptomatology of Tabes. Tabes among the Working Classes. A. v. SARBÓ.
9. Experimental Investigations upon the Relation of the Patellar Reflexes in Higher Transverse Myelitis. A Postscript to the Article on Acute Cerebral and Cerebrospinal Ataxia, in Volume 22 of this Journal. R. BALINT.

1. *Disturbances of Motion and Anesthesia.*—A man of twenty-seven years, in a quarrel, was repeatedly stabbed in the back, fell to the ground, and remained paralyzed. Two large wounds were found in the back to the right and left of the second and third spinous processes. With great effort the patient was able to move both legs and the right arm slightly, but the left arm remained completely paralyzed. In a short time motion was restored to both legs and to the right arm. There was loss of sensation in the right side of the body from a level one inch below the clavicle downward. Pressure, pain and temperature sense were only disturbed in the right arm and right side of the trunk as far as the groin. There was normal sensation on the whole left side of the body including the left arm. Passive movement was not felt in the right arm. The tendon reflexes were only preserved in the right leg. The skin reflexes were normal. The muscles reacted normally to electricity. In the course of time motion returned to all the limbs, but the right arm remained anesthetic and there was distinct ataxia. Strümpell believes that the lesion was in the left posterior cornua and posterior columns of the cervical cord. He describes carefully the alterations in the movement that occurred, the effect upon the movements of closing the eyes, which caused them to be extremely uncertain, and the fact that the patient was practically unable to use the hand. He discusses the relation of anesthesia to ataxia, speaks particularly of the development of higher manifestations of movement in human beings, and concludes that we have certain elements in the production of normal movements: first, the centripetal transmission of the regulating sensations to the central nervous system; second, the proper utilization of these sensations by the central nervous system, and finally, the intact centrifugal transmission along the motor paths. Moreover, voluntary motion is not controlled merely by this simple reception of sensations and emission of impulses, but



also by the education of the central nervous system through numerous sensations receiving impulses transmitted in the past.

2. *Epilepsy*.—Biro has studied 306 cases of epilepsy with particular relation to the following points: (1) The etiology with reference to physical and psychical injuries, reflex conditions, the relations of infectious diseases to disturbances of metabolism, to alcoholism and to heredity; (2) the preliminary conditions of the disease and the relations of some little-known prodromes to the nature and severity of the attack; (3) the reciprocal relations of various symptoms, such as disturbances of the bladder and biting of the tongue during the attack, to other phenomena; (4) the condition of biting of the tongue in relation to the pupils; (5) some remarkable post-epileptic manifestations which are commonly called *epilepsia procursiva*; (6) the psychical condition of the patient. In regard to the age, the disease commenced in 60 per cent before the twenty-first year. In 48 per cent of the cases it was possible to find some cause of the disease, and in 21 per cent of these there was a history of injury. In some of these, the epilepsy occurred very promptly, in others after comparatively long intervals. Sometimes there was only a single injury; in others it was frequently repeated. In 10 per cent of the cases some psychical injury had occurred. In one per cent of the patients there was a history of onanism. Twenty-six of the patients developed epilepsy after the thirtieth year; only one of these had had syphilis. In no case was there hereditary syphilis. In 185 cases carefully studied there were no heart lesions. In only one of all the cases was there any symptom of slight aortic stenosis. Intestinal parasites were found in one per cent of the cases, but cure very rarely occurred after their expulsion. Alcoholism appeared to have slight influence upon the production of epilepsy. Alcoholism in the parents, however, was present in 14 per cent of the cases, and as nearly all the cases belonged to the Jewish race, and as the Jews are as a class temperate, this represents a very large proportion. In 6 per cent of the cases there was direct heredity, and in 16 per cent either direct or collateral heredity. In 24 per cent there was neuro- or psychopathic heredity. It appears that sons are more apt to inherit epilepsy from their father, daughters from their mother. The prodromes are classified as follows. Sensory in 30 per cent; vasomotor in 22 per cent; psychical in 17 per cent; visceral in 16 per cent. In 28 per cent there was a distinct aura. Biro observed no cases in which Argyll-Robertson pupils were present. Vomiting occurred in 2 per cent of the cases. In 14 per cent there was biting of the tongue. In 5 cases there was incontinence of the feces during the attack. Disturbance of urination occurred no matter whether the disease commenced early or later in life. The time of occurrence or duration of the disease appears to have no distinct influence upon the severity of the attacks. The post-epileptic symptoms were usually constant and occurred after every attack. They consisted of fatigue, sleepiness, weakness of the extremities, headache, and vomiting. The sleepiness occurred in 60 per cent of the cases. In 4 per cent of the cases albuminuria was present. The time of occurrence was in 58 per cent during the day or night; in 5 per cent only during the day; in 8 per cent very frequently during the day; and in 29 per cent only during the night. In 14 per cent of the cases there was distinct intellectual deterioration. This did not appear to bear any particular relation to the duration of the disease. In only 2 per cent of the cases was there any change in the type of the attacks. Sometimes the attacks were distinctly periodic. Biro discusses the diagnosis, pathogenesis, and pathological anatomy, chiefly upon the basis of his literary studies. The prognosis is difficult. It is always worse when the attacks are severe in the beginning. A great variety of procedures have been recognized in the treatment: the

rest-cure; various operations upon the vertebral arteries, the cervical ganglia, trephining, and lumbar puncture, but the results are invariably uncertain. Among the drugs that have been given are atropine and the bromides, which should be given in diminishing doses, but which may be combined with various other drugs or with the withdrawal of chlorides from the food, under which circumstances as soon as symptoms of intoxication develop milk and large quantities of sodium chloride should be given.

3. *Early Diagnosis of Tabes*.—Kollarits has studied 1,000 healthy cases in reference to various reflexes. In every one he found the scapulo-humeral reflex present, also the patellar and Achilles tendon reflexes, and the triceps reflex, and therefore he regards the absence of these reflexes as of pathological significance. In 100 cases of tabes the following results were obtained. All four reflexes failed to be present in 31 cases; all four were present in 25; the Achilles tendon reflex was alone absent in 11; the Achilles and patellar reflexes were absent in nine; the Achilles tendon and patellar and triceps reflexes were absent, and the scapulo-periosteal reflex was present in seven cases. In some cases unilateral persistence of the reflexes was observed. The total results were: absence of the Achilles tendon reflex on both sides in 65 cases, on one side in five, present in 30 cases. Absence of the patellar tendon reflex on one side in 56, on one side in four and present in 40 cases. The triceps reflex was absent in 43, one side in 10; the scapulo-periosteal reflex was absent on both sides in 35, and one side in two cases. The greatest importance, therefore, should be placed upon the Achilles tendon reflex. Careful study of the 100 cases indicated that there was no rule in the serial course of the various symptoms of tabes. Among the most important early symptoms are the hypertonia, the paralyzes of the eye muscles, disturbances of sensation and the loss of the Achilles tendon reflex. He mentions two cases in which the disease commenced with paralysis of accommodation on the part of the pupils, showing other tabetic symptoms very slowly. In one case the symptoms occurred in a woman twenty-one years of age.

4. *Myasthenia Gravis*.—The patient, a man of forty-three years, had had an attack of pain in the back, limbs and joints. Six years later he had ptosis, and a feeling of heaviness in the legs and then in the arms. Later he had strabismus, diplopia, and the muscles became rapidly paralyzed by exertion. He developed bulbar symptoms and died. During the course of the disease there was a distinct myasthenic reaction in many of the muscles. The most important pathological alterations found were numerous accumulations of round cells in the muscles. This was probably not inflammatory, because there was not fever at any time in the course of the disease. The spleen and lymph glands were not enlarged, and therefore they were not leukemic. Link suggests that this accumulation of cells disturbed the lymphatic circulation, and therefore favored the extraordinary tendency to fatigue on the part of the muscles.

5. *Cucullaris Muscle Innervation*.—A girl of twenty years, after a severe injury to the shoulder, was noticed to have slight deformity due to the high position of the shoulder-blade. The lower portion of the left cucullaris was found to be completely atrophied. The middle bundle was moderately atrophied and the upper bundle very slightly. The position of the scapula was abnormal in spite of the fact that the acromial portion functioned fairly well, and it was distinctly winged. In this case there appeared to be injury to the accessory nerve, and as a result of careful studies of the literature, Schulz concludes that the accessory nerve supplies really the lower portion of the trapezius muscle, partly the middle portion, and the upper portion in association with certain of the accessory

nerves. The cause of the winged position of the scapula is apparently the atrophy of the lower bundle of the trapezius muscle.

6. *Paralysis in Epidemic Cerebrospinal Meningitis*.—A man twenty-one years of age had an attack of cerebrospinal meningitis, meningococci being found in the cerebrospinal fluid. On the seventeenth day of the disease he had recovered but had partial paralysis of the lower arm, abduction being completely impossible. There was atrophy of the deltoid and infraspinatus, and extreme weakness of the pectoral muscles. There were quantitative changes in the electrical reactions, but no reaction of degeneration. There was also in part of the left arm an area of lost touch and pain sense, and diminished temperature sense. Two days later there was an area of complete anesthesia on the right leg just below the insertion of the patellar tendon. The patient gradually recovered both sensation and motion and was discharged capable of working. Schmid believes that the cause of the paralysis was either in the nerves or the spinal cord, and as meningitis was present unquestionably, it was the result of that condition.

7. *Chorea Mollis*.—After collecting seven cases from the literature Rindfleisch reports two cases of chorea mollis that he observed. The first a girl of four years, had had painful swelling and redness of various joints. There was some cardiac involvement and choreic movements. The patient gradually developed weakness of the arms and legs and finally became paralyzed. In the course of six weeks both the paralysis and the choreiform movements had ceased. The second patient, a girl of five years, had fever, pain in the breast, cough and dyspnea. There was also a cardiac lesion. The child gradually developed apathy and finally refused to speak. When examined there was paralytic weakness of all the voluntary muscles, swallowing was difficult, the patient could neither sit, stand nor walk. The electrical reactions of the muscles and sensation were normal. The child died, and at the autopsy there was found an acute varicose endocarditis of the mitral valve, pericarditis, pneumonia, bronchitis, nephritis and enteritis. In the central nervous system there was some enlargement of the pericellular and perivascular spaces, and slight degenerative changes in Nissl's granules. In the muscles many of the fibers were swollen and tortuous, and frequently showed granular degeneration. There was proliferation and deformity of the nuclei; the intracellular nerve fibers were normal, and the interstitial tissue contained numerous nuclei. In conclusion Rindfleisch mentions that the muscles in this patient had an alkaline reaction immediately after death, and that rigor mortis did not develop.

8. *Tabes and Occupation*.—Sarbo has collected the statistics of 1,200 private cases of nervous disease, 4,000 cases among workmen. Among private patients 7.4 per cent had tabes, and among the workmen 2.6 per cent. For various reasons the latter figure represents the normal proportion. In the upper classes 7 per cent of the cases were women; in the lower classes 16 per cent. The age at which occurrence took place was as follows.

UPPER CLASSES.		WORKMEN.	
Age	Per cent.	Age	Per cent.
20—30	7.	20—30	16
30—40	63.5	30—40	48
40—50	24.7	40—50	
50+	4.6	50+	9



That is to say cases occurred more frequently among the workmen in the early and late life than among the upper classes. Syphilis was present in 53.6 per cent of the upper classes, and in 43 per cent of the workmen. This is probably due to the fact that the latter class paid less attention to their symptoms. Among the non-tabetic cases of nervous disease syphilis was present in 5.5 per cent among the workmen. Of the other etiological factors there are neuropathic heredity in 15.3 per cent, alcohol in 7.3 per cent, and thermic influences in 4.1 per cent. Sarbó discusses certain arguments that have been brought forward against the syphilitic nature of tabes, and calls attention to the fact that tertiary syphilis is even rarer than tabes, and that the disease is not especially uncommon among women. In 60 per cent of all cases of tabes, marriage was either unfruitful or there were abortions. The time at which syphilitic infection preceded the development of the symptoms varied from one to thirty years. It varied from six to twenty years in 75 per cent of the cases. The wives of five men suffering from tabes had probable tabes in one case, certain tabes in two cases, tertiary syphilis in one, and cerebral syphilis in one. Two husbands suffering from general paralysis had tabetic wives. Sarbó gives a valuable table of the early symptoms of tabes, the most common being the lancinating pains in 67.5 per cent; next common, diplopia in 3.6 per cent; dyspnea and some disturbance of hearing, ptosis and Argyll-Robertson pupil occurred in 12 per cent. Decoloration and atrophy of the eyegrounds occurred in 71 per cent of the cases during the first five years. He gives another table of the symptoms of the advanced stage of the disease, from which we find that his own sign: analgesia of the peroneus nerve, is present in 85.5 per cent.

9. *Patellar Reflexes in High Transverse Myelitis*.—Bálint performed five experiments upon rabbits and cats in order to determine the effect upon the reflexes of section of the cord. He found that if he used a thin-bladed knife for the section, the reflexes could be elicited immediately after it was made; if a thicker blade was used the time of their appearance was delayed for several minutes, and when crushing force was employed several days elapsed. In seven cases he extirpated the cerebellum. There was more or less prolonged absence of the reflexes. In one case seven days. The muscles were atonic and if the animal lived the reflexes gradually returned. Unilateral extirpation indicated that the cerebellum influences the muscles on the same side. He noted in these experiments that the corneal reflex disappeared on the same side as the extirpated cerebellar hemisphere. Another series of experiments was also made to determine whether histological changes occurred in the lumbar region after crushing the spinal cord at a higher level, which would explain the disappearance of the reflexes. In four cases there were distinct although not extensive degenerative changes in the large lumbar nerve cells. In three cases there was degeneration in the posterior columns evidently secondary to degeneration of the posterior roots. He concludes that separation of the lumbar cord from the upper cord, particularly the centrifugal tracts of the cerebellum, influences reflex activity unfavorably by diminishing muscle tone. As a result of this even a slight secondary involvement of the reflex tracts is sufficient to cause the reflexes to disappear.

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#### REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(Vol. 7, 1903, No. 3, March.)

1. Three New Theories of Hysteria. HENRI COLIN.
2. A Case of Juvenile General Paresis with Microscopical Examination. L. MARCHAND.



1. *Hysteria*.—This article is an examination of the work of Babinski, Grasset, and Bernheim and concludes with a statement of the authors own ideas on the subject. Babinski concludes that the characteristics common to all laws of hysteria are (1) the possibility of their reproduction by suggestion with rigorous exactitude in certain subjects; (2) their disappearance under the exclusive use of persuasion. He uses the word suggestion however in an exact sense. Rather than in accordance with the loose custom of including under it anything which might influence the hysterical, he attaches to the word a precise meaning implying a bad or unreasonable idea. On this basis he constructs the following definition of hysteria: "Hysteria is a psychical state rendering the subject capable of autosuggestion. It is manifested principally by primitive disorders and accessorially by secondary disorders. The primitive disorders are characterized by their possibility of reproduction by suggestion with rigorous exactitude in certain subjects and their disappearance under the exclusive use of persuasion. The secondary disorders are characterized by being strictly subordinate to the primary." This definition immediately brings up the idea of hypnotism which he defines as follows: "Hypnotism is a psychical state rendering the subject susceptible of suggestion from others. It manifests itself by phenomena that suggestion brings into existence, that persuasion causes to disappear, and that are identical with the accidents of hysteria." The disorders of hysteria are, therefore, due to autosuggestion; hypnotic states result from others' suggestions; hysteria is active, the hypnotic state passive.

Grasset divides psychic life into two parts, both of which have their centers in the cortex. The intellectual functions, consciousness he calls the superior psychism: the spontaneous, unconscious, automatic acts he refers to the inferior psychism. The polygon of the inferior psychism or the superior automatic centers is made up of the sensory and motor centers connected with one another and also with the environment and with the superior psychism. All psychic acts are therefore conscious or unconscious according as the superior psychism is or is not a participant. Somnambulism, automatism, etc., are then explained by a subpolygonal disaggregation, that is, a suppression of communications from the superior to the inferior psychism. Thus he says hysteria is not a mental, but a psychic disease, mental referring to the superior psychism while psychic includes both superior and inferior. The hysteric always has disorders of the inferior psychism if at the same time the superior psychism is involved, the hysteric is alienated.

Bernheim defines the hysterical crisis as "the exaggeration of an ordinary phenomenon of psycho-physiological order." All are to an extent hysterics, as witness the effects of fright, anger, etc., upon many persons, producing epigastric constriction, accelerated heart, congestion of the face, trembling, etc. Often are added speechlessness, paralysis, vomiting, and other symptoms identical with hysteria. These symptoms in some may be much exaggerated and such are hysterics, that is, they have a hysterogenic nature well developed and easy to bring into action. Hysteria is then brought into existence by many causes, moral and physical. It may be brought out by arterio-sclerosis, chorea, epilepsy, traumatism and its manifestations, general or local, and may persist after the cause has disappeared.

The author concludes with a criticism in which he rejects the theories of Grasset and Bernheim, but accords value to that of Babinski for diagnostic purposes in difficult cases and for treatment.

2. *Juvenile General Paresis*.—The case was that of an eighteen year old boy. No history of syphilis could be obtained. The mental symptoms were those of simple deterioration and had to be differentiated from dement-

tia præcox and imbecility. Symptomatically the motor signs were not well marked. The microscopic findings were essentially the same as those found in adult cases of paresis.

(Vol. 7, 1903, No. 4, April.)

1. Experimental Researches on the Emotions. MARCHAND.
2. The Feeling of the Already Seen and the Illusion of False Memory. MICHEL LÉON-KINDBERG.

1. *Experimental Researches on the Emotions.*—The author undertakes an experimental study to establish the truth or falsity of the James-Lange theory of emotions, viz., that they follow upon physiological changes and are the feelings produced by these changes. According to this theory we are sad because we cry, are happy because we laugh—the emotion following upon the vasomotor, respiratory, and other physiological changes. For the purposes of experiment the author studied a patient afflicted with the obsession of the fear of blushing and who constantly blushed in the presence of others. As a result of his observations on this case he concludes that physiological disturbances are always secondary to emotional states. This corresponds with the observed fact that often the vasomotor disturbance, for instance, will persist after the emotion has disappeared—an impossible state of affairs according to the James-Lange theory. One other patient who reacted strongly to emotions was also studied and gave the same results. In concluding the author observes that the emotional state is not produced by perceiving organic, respiratory, or circulatory disturbances. If this were so then disturbances of pulse, respiration, etc., would determine emotional states, and there would be a relation between their intensity and the emotion conditions which do not correspond to facts.

2. *The Feeling of the Already Seen and the Illusion of False Memory.*—The author begins with a short sketch of false memory—paramnesia. He traces its recognition to Pythagoras and more recently finds accounts of it in the writings of Dostoïewski, Tolstoi, Pierre Loti, Dickens, and Jules Lemaitre. It has been scientifically treated by Wigan, Jansen and Sander, Horcwez and Boirac, Pick, Ribot, Forel, Fouillée, Lalande and Dugas, Armand, Kraepelin, Leroy, and Tobolowska. In a discussion of the facts of paramnesia it is shown that the memory is very specific in every case: the pose, expressions, gestures, inflexions of the voice all being fully recognized as having taken place before. These phenomena also occur only under conditions of fatigue—cerebral neurasthenia. The accompanying feeling is often one of curiosity, sometimes of indifference, occasionally of amusement. Sometimes the subject really has a feeling of fear. Paramnesia may be an epileptic aura and then is often associated with vertigo. Accompanying paramnesia is sometimes—one-tenth of the cases examined—a feeling of depersonalization. Everything seems obscure, strange, as in a dream, as if they had fallen on a new planet, the subject feels himself a stranger to all his perceptions, actions, memories.

The theories to account for paramnesia are taken up in detail. The theory that the paramnesia is a memory of a previous existence is discarded. The telepathic theory is criticised as explaining what is obscure by what is more obscure. Ribot's hypothesis that it is merely an error, is held to be inadequate. The long since abandoned idea of the dual action of the two cerebral hemispheres put forth by Wigan and held later by Jansen and Mandelej is mentioned as a matter of history only. Fouillée believes paramnesia to be due to a temporal diplopia analogous to the special diplopia of disordered vision. Angel thinks the phenomena due to a delay between sensation and perception, so that when the sensation is finally perceived it appears old, as if already known. Bernard-Leroy and Tobolowska

think that false memory is a false feeling. Memory presupposes a double representation, and when false is due to the false feeling associated with it.

After this statement of others' theories the author takes up the discussion himself with a view to explaining the phenomena on a rational basis. He concludes that the perception of reality requires a certain mental effort, effort of synthesis. In memory there is the lack of necessity for this mental work and the reality is grasped with greater facility. Cases which exhibit paramnesia view the external world much as one in a dream. Everything going on about them is as if on a stage, it is not synthetized with their personality, and seems to them strange, unreal. The mental work of synthesis being absent, the environment being perceived with the same facility as a memory not requiring synthesis, there arises the illusion that it is a memory, that the present has been perceived before.

(Vol. 7, 1903, No. 5, May.)

1. Researches and Observations of Alfred Maury on Dreams. N. VASCHIDE.
2. Two Cases of the Delusion of Pregnancy. CH. TEURIDAN.
3. Quantity of Albumin in the Cephalo-Rachidian Fluid in the Course of Some Diseases of the Mind in Particular General Paresis. L. MARCHAND.

1. *Dreams*.—Although Maury's work, "*Le Sommeil et les Rêves*," was published in 1878, many of the observations in it dating back as far as 1848, it still stands as a classic and very little that has been published more recently, but that embodies many of the conclusions expressed therein. Of the multitude of problems attacked by many in his work, the author reviews the principal. The analogy of the structure of the dream and that of the disordered mind is discussed, and Maury insists upon the incoherence of the two states as showing best their analogy. This incoherence he states, however, is more apparent than real, and dream ideas, like ideas of the insane, are founded on irrational associations that escape us on awaking. The hallucination of sleep is identical, he thinks, with the hypnogogic hallucination which often directs the course of the dream and is responsible for its incoherences. The prophetic previsions of dreams, and the sudden hallucinatory appearance of strange faces to the insane are phenomena of paramnesia. A final resemblance between the dream and mental alienation is shown in the fact that in both, phenomena of memory prevail over those of invention. Maury's original contributions to the subject of dreams was largely concerned with the results of introspection and the analysis of states of mind intermediate between sleeping and waking. His observations on hypnogogic hallucinations constitute the best part of his work. These hallucinations announce the approach of sleep. As sleep approaches the different senses more or less unequally suspended in their activities, the memory alone is as active and sometimes more active than during the waking moments. As this change is gradually going on, the hallucinations come and thought loses all voluntary direction and "the dreamer is no more free than the insane or intoxicated man." Then hypnogogic hallucinations form the starting point of dreams. For example, he saw in the half waking state a plate of food and a hand with a fork, a few moments afterwards having fallen quite asleep he imagined himself at a well served table and could hear the sound of the forks of his companions. These hallucinations of the half waking state he believes to be of peripheral origin and is often conditioned by fatigue. The hypnogogic hallucination has as its substratum an illusion, and it is only when the intellect is greatly disturbed that it can occur without this preceding illusion.



The hallucinations are more often visual, next in frequency auditory, while hallucinations of touch, taste and smell are rare.

2. *Delusion of Pregnancy*.—The subjects which present this delusion have no physical basis, such as increase in size, suppression of the menses, digestive troubles, to account for the idea as do hysterics who believe themselves pregnant. The true cases recorded show in common a fundamental condition of mental weakness in part constitutional, in part acquired.

3. *Albumin in Cephalo-Rachidian Fluid*.—From an examination of the cephalo-rachidian fluid in twenty-one insane persons the author reaches the following conclusions: (1) The cephalo-rachidian liquid in paretics contains in general a greater quantity of albumin than the normal fluid; (2) the quantity of albumin is not in relation with the period more or less advanced of the disease; (3) the quantity of albumin acquires a real diagnostic value only when it reaches one gram per liter or more; (4) the quantity of albumin in the cephalo-rachidian fluid of paretics can vary in an interval of a few days; (5) among no other insane persons examined was an amount of albumin found as great as one gram per liter.

(Vol. 7, 1903, No. 6, June.)

1. The International Congress of Neurology and Psychiatry. L. THIVET.
2. Senile Amnesia and Hysterical Flights. M. DUPRAT.
3. Measure of the Gustatory Sensations. L. MARCHAND.
4. Researches on the Light Reflex. DRS. TOULOUSE and VURPAS.

1. *International Congress*.—This paper is an excellent report in the form of abstracts of the various papers presented to the International Congress of Neurology and Psychiatry held in Madrid. The subject matter is well presented but in such form as not to lend itself to further abstraction.

2. *Senile Amnesia and Hysterical Flights*.—The flights of hysterics and epileptics have been studied especially with reference to the absence in normal consciousness of all memories relating to the flight. The author takes up the study of the flights of the senile to establish the causal relation between the loss of certain memories and the impulse of flight. Amnesia before the flight is no less worthy of attention than amnesia after the flight. Two cases are cited, one an old man who notes the absence of his grandchildren at meals, but is no sooner out of the dining-room than he speaks of them as in the house. The other case that of a senile dement who was taken from his home to another house. The new house has a continuous disagreeable effect upon him and he constantly seeks his home although he does not know where it is. The new home does not correspond to any of the old memories that keep recurring. From a study of such cases the author concludes that the incapacity to fix recent memories and revive recent states of consciousness permits of a high degree of vividness of the older memories and thus makes the flights out of harmony with present situations. The flight is not necessarily by itself a morbid phenomenon, it may not present disorder of thought, movement, or language, but it is characterized as abnormal because of its lack of adaptation to the environment. The article closes with a short discussion of the differentiation of senile from hysterical, epileptic and neurasthenic flights. Amnesia, which makes the mental images of the past control the acts of the present is the distinguishing and characteristic feature of the senile flight.

3. *Gustatory Sensations*.—An article devoted solely to the technic of testing the gustatory sense. It has little interest from a psychiatric standpoint and does not lend itself readily to abstraction.



4. *The Light Reflex*.—Both the qualitative and the quantitative reaction of the pupil to light varies according to the intensity of the stimulus. When the light is feeble the contraction is very noticeable, relatively to the previous state of dilatation. But this contraction does not last long. Almost immediately the pupil redilates but without reaching its original diameter. Thus we see alternate contractions and dilatations, a sort of struggle between the iris and the light stimulus. When the intensity of the light is much greater the phenomena are very different. Under these circumstances the contraction of the pupil is much more rapid, and the contraction continues without the alternate movements of contraction and dilatation observed when the light is feeble. These facts make it desirable to adopt a routine technic in pupillary examinations, examining in each case the reactions both to intense and to feeble light stimuli. The following points should be noted as a result of this examination: (1) The latent time or times separating the application of the stimulus from the beginning of the response; (2) the rapidity of the contraction; (3) the maximum contraction of the pupillary orifice; (4) the duration of the contraction. These various phenomena are only appreciable in a mild light, and such a light is best adapted for bringing out all the peculiarities of pupillary response. In certain cases, however, of pupillary paresis the subject should be examined in the full light of day and only under such conditions is one authorized to diagnose an absence of the light reflex.

WM. A. WHITE (Washington, D. C.).

#### JAHRBUECHER FUER PSYCHIATRIE UND NEUROLOGIE

(Vol. xxiii, 1903, No. 3.)

1. The Results of the Electrical Examination in Progressive Paralysis and Dementia Senilis. PILCZ.
2. The Morphology of the Normal and the Pathological Spinal Cord and the Lateral Pyramidal Tract. STRAUSSLER.
3. The Nerve Cell Changes in Tetanus and their Interpretation. SJOVAL.
4. Cerebral Syphilis. PROBST.
5. Psychoses following Earthquakes. PHELPS.

1. *Electrical Examination in Paralysis and Senile Dementia*.—In a former paper Pilcz presented the data derived from the electrical examination, with graphic records of the muscle contractions in a certain number of acute mental cases. The present paper deals with the results of the examination of chronic cases, comprising 46 paretics and 8 senile demented. The expectation was that changes in the excitability of the peripheral nervous system would be found not because the cerebral changes which produced the disease would of itself lead to it, but that the whole organism in conjunction with the brain condition would carry with it changes in the peripheral nervous system and the muscular system as well. Results: Of the 46 paralytics 8 showed nothing abnormal. In 6 of them the examination was incomplete. In 32, or 80 per cent, there were changes in the electrical excitability found. The changes were for the most part in the lessening of the electrical excitability to both the galvanic and the faradic current. Of eight cases of senile dementia there were two normal.

2. An anatomical study not suitable for abstract.

3. *Cell Changes in Tetanus*.—This is a careful study of the microscopic appearances of the nervous system of a case of tetanus. A résumé of the previous work on the subject is first given. The sections were imbedded in paraffin cut very thin and stained with toluidin blue and erythrosin. The following results are noted by the author: The nerve

cell changes in tetanus consist in a change of the tigroid substance, probably of a chemical nature in connection with a turgescence of the cell. A peripherally lying nucleus and an enlargement of the nucleolus are sometimes observed. In addition to these changes a peculiar appearance is observed, especially in the tigrolytic cells and almost always in cells in which there was a peripherally lying nucleus. This change consisted in simple or jagged invagination of the nucleus. The direction of this process was toward the tigroid, which was the seat of the greatest change. These changes are to be considered as the expression of the tetanic excitability of the motor cells fully within physiological limits. The proof of this is the following: (1) These changes approach so nearly those which are produced experimentally; (2) the close relation between the clinical symptoms and the morphological findings; (3) there seems to be indicated a relation between the atomical appearances and the localization of the convulsions; (4) from a theoretical standpoint it is to be expected that the microscopical appearances would point to a high degree of activity. This explanation does not contradict the bacteriological fact that a union of the tetanus toxin takes place in the nerve cell. It is very probable that the toxin is not formed in the trophic substance that is the tigroid, but in a specific nervous substance which we are at present unable to demonstrate.

4. *Cerebral Syphilis*.—This is a study of a case of cerebral syphilis in which the central nervous system was studied histologically with great care. Especial attention was paid to the study of the path of the olives in the mesencephalon, to the anterior portion of the foot of the cruræ, the pyramidal tract, the pyramidal "*schleife*," the dorsal "*längsbündel*," and to the trapezoid body. The great mass of anatomical data make an abstract impossible.

5. *Psychoses and Earthquakes*.—Although the effects of earthquakes as a cause of the outbreak of various forms of neurosis have been often alluded to, the reports in the literature are very meager, the author finding but two cases. Three cases are reported which illustrate very well the development and the outcome of what may be termed the earthquake psychosis. The symptoms are much those of an acute psychosis with hallucinations, confusion, amnesia, sleeplessness and anxiousness. Recovery was very gradual. The cause of the symptoms is to be found in the sudden and violent alteration in static excitability, which causes by means of the violence of the shock far-reaching alterations in the normal psychical processes.

(Vol. xxiv., 1903, No. 1.)

1. Concerning our Knowledge of Certain Forms of Acquired Dementias. STRANSKY.
2. Experimental Investigation on the Origin of the Hypoglossus and of its Descending Branch. KOSAKA AND JAGITA.
3. A Contribution to our Knowledge of the Plexus Chorioideus in the Insane. PILCZ.

1. *Acquired Dementias*.—Dementia præcox and the secondary dementias are among the most debatable subjects in psychiatry. The author of this extensive paper sets himself the task of analyzing the symptoms which go to form the clinical picture of these conditions and testing them as to their frequency and permanency in the forms of insanity, with which they have for so long been identified. Sixty cases of dementias, together with many other cases studied at former times, make up the material upon which this study is based. Careful clinical histories are included in this paper. As the article consists in a discussion of these cases, no adequate abstract can be made.

2. *Hypoglossus Origin*.—An investigation of the origin of the hypoglossus which aims to give additional data on the following six points: (1) The fate of the hypoglossus nucleus after resection or tearing out of the nerves; (2) the hypoglossal nucleus in birds; (3) the relation of the true nucleus to the nuclei in the neighborhood; (4) the limitation of the origin of the hypoglossus to the same side; (5) the origin of the ramus descendans; (6) the muscular localization in the nucleus. The examination under the first heading gave such different results that the authors are inclined to believe that there exists not only a difference in animals of different species, but in two animals of the same kind, of the same weight and operated upon under the same conditions. For the second question, the medulla of pigeons, chickens and ducks was studied. It was determined that the hypoglossus of birds, as well as of vertebrates, is intended for the nerves of the same side, and is in connection with no other nerve. Roller's assumption that a part of the hypoglossus arises from the small celled nucleus is disproven. The 'Neben Kern' of Duval was likewise shown to have no relation to the true nucleus. Under four, the uncrossed origin of the fibers is asserted. Under five, there are numerous facts which a comparative study of various animals have brought to light. The cells of origin in vertebrates of the descending branch of the hypoglossus are more or less posteriorly situated in order to push forward to the anterior horn. Under six, the following conclusions are noted: (1.) In man the hypoglossus nucleus consists of definitely limited cell groups; (2) certain groups of muscles of the tongue are represented by definitely limited cell groups.

3. *Choroid Plexus in the Insanities*.—This is a study in 13 cases of progressive paralysis; 3 of delirium acutum; 1 of amentia, a case of dementia following multiple cerebral lesions; 2 of delirium tremens, and one each of dementia, Korsakoff's psychosis, epilepsy, dementia senilis and melancholia. Among the changes found in the specimens examined are the following: A retrogressive metamorphosis of the connective tissue and the sand bodies. These are of so constant an appearance that their pathological significance cannot be doubted. The great increase of the cerebro-spinal fluid, the changes in the epithelial cells, the giant cells, the small cell infiltration and the appearance of pigment granules in the blood vessels are all to be seen in these preparations.

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#### NOUVELLE ICONOGRAPHIE DE LA SALPETRIERE

(Vol. xvi, 1903, No. 3, May-June.)

1. A Case of Anencephalus. BRISSAUD and BRUANDET.
2. Cervical Paraplegia Caused by a Glioma of the Cord, with Pachymeningitis. SPILLMAN and HOCHÉ.
3. Autopsy of an Acromegalic and Diabetic Giant. LAUNOIS and P. ROY.
4. Precocious Gigantism with Early Development of the Genital Organs. HUDOVERNIG and POPOVITS.
5. Congenital Hypertrophy of the Hand. DUCREST DE VILLENEUVE.
6. Alcoholism in Brittany. APERT.
7. L'Apothicaire, Picture by P. Longhi. MARIANI.

1. *Anencephalus*.—An anatomical study of an anencephalus fetus of about seven months, weighing 250 kil. and 36 cm. long. The article is illustrated by photographs and a radiograph and numerous diagrams, showing the distribution of the cranial and spinal nerves. Much interesting data is given in this article, which cannot be abstracted.

2. *Cervical Paraplegia*.—Case of a young girl, nineteen years old, with a marked atrophy of the thenar eminence, hypothenar and interossei



of the right hand. The muscular force of the hand is reduced to almost nothing; sensibility is normal. The muscles of the right arm, of the shoulder and of the trunk present marked evidences of atrophy. The left arm and hand show very little atrophy, but there is a diminution of muscular force. Complete paraplegia of the lower extremities with beginning atrophy of the muscles of the thigh and buttock. There is, at the level of the thigh, a zone of anesthesia without any dissociation of sensation. The sensibility to pain is totally lost, as is also the sensibility to touch, heat and cold. The knee jerks are exaggerated, sphincteric control is lost. The patient died as the result of dyspnoea leading to asphyxia. A tumor extending from the eighth cervical to the third dorsal, especially prominent on the right side. The tumor was covered with pia mater. This growth produced an almost complete interruption of impulses in the spinal cord from the eighth cervical to the first dorsal. It amounted to a veritable section of the spinal cord, gradual but progressive in its result. The diagnosis of the tumor lay between sarcoma and glioma, the latter being the more probable on account of the intimate growth of the tumor with the adjacent nervous structures, especially in the matter of the neuroglia. The secondary changes in the tumor were of interest; formation of cavity, formation of thrombi and pachymeningitis. The following four points are noted as of especial interest: (1.) The case which is here reported is a rare example of a syringomyelogenous glioma seen at the commencement of its development. (2.) The fact that numerous ependymal canals in the neighborhood of the tumor and of vascular angiomatous malformations at the same level speaks for the congenital origin of the tumor. (3.) The fact that the ependymal cells are found as a part of the tumor points to the ependymal nature of the growth. The destruction of the meninges and the rapid progress of the disease place this case in the category of pachymeningitis of syringomyelic origin. The lesion of the meninges is not due to a special or to a common form of inflammation, but to their disappearance caused by the neoplasm itself.

3. *Acromegaly and Diabetic Giant*.—This paper is based upon post-mortem examination of a giant who was presented to the neurological society of Paris in 1900. He died at the age of 36 years. His length was 2M. 12. The autopsy showed a tremendous epithelioma of the pituitary body with prolongation into the lateral right ventricle, hypertrophy of the thyroid body (250 gr.) visceral gigantism. This case resembles those which have been before published in deformity of the skeleton and in the presence of the pituitary body tumor. The following interesting peculiarities are noted: (1.) The presence of osseous plates in the spinal meninges. (2.) Tuberculous pulmonary lesions. This has been frequently observed in the autopsy upon giants. (3.) The enormous hypertrophy of the thyroid body. This was not observed during life. Similar alterations of the thyroid body have already been observed in cases of acromegaly. (4.) In regard to the cerebral tumor found in this case and which was here the cause of the gigantism and the acromegaly, it is interesting to note that in spite of its enormous volume, it produced no symptoms during life. Although its situation and its growth might have led one to suppose that the optic nerves would be compressed, the chiasma had not been affected. It had become enlarged in a transverse direction, but the nerve fibres which composed it had retained their function. From the histological point of view, the tumor was found to be a primary epithelioma of the pituitary body. This variety is rather rare, if one consults statistics published by Parona, who notes that in 57 cases adenosarcoma was found 45 per cent., adenoma 26, sarcoma 19 and angioma 3 per cent. (5.) In this case it is interesting to observe that not only was the gigantism shown by the enormous enlargement of the individual bones, but that the principal



viscera, without presenting any definite histological lesion, have undergone an augmentation in volume, more or less considerable, producing a visceral gigantism. (6.) The diabetes, which was found in the case, was probably a direct consequence of the hypophyseal tumor. This has been observed before.

4. *Precocious Gigantism*.—A case of precocious gigantism in a boy 5½ years old; no hereditary history. A radiograph and a photograph, together with measurements of the various parts, accompany the article.

5. *Congenital Hypertrophy*.—A case of deformity of the left hand in a man 36 years old. The arms are absolutely symmetrical. The left hand is notably larger than the right. Photographs and a radiograph accompany the article.

(Vol. 16, 1903, No. 4, July-August.)

1. Spasms and Trembling in Psychasthenia. F. RAYMOND. P. JANET.
2. Tonic Tic of the Right Upper Extremity. F. RODLER.
3. Myxedematous Infantilismus and Recklinghausen's Disease. MEIGE, FEINDEL.
4. A Rare Form of Radial Hemimelia. KLIPPEL. RABAUD.
5. Cribriform Tongue in an Insane Epileptic. BIANCHINI.
6. Nervous Arthropathy Treated by Resection. PATEL CAVAILLON.

1. *Psychasthenia*. Two cases are here described which present an interesting problem in diagnosis and classification. Case 1. Woman aged twenty-five years, walks with difficulty and holds herself in a peculiar position. The left shoulder is lower than the right and the head is turned to the left resting upon this shoulder. Attempts to place the body in a normal position are prevented by the resistance of the muscles. The history of the patient shows that shortly after the birth of the first child the patient was thrown in this position by the sudden shock of a thunder storm. Case 2. A man forty-eight years old has a very marked tremor which is so evident that the patient appears to be suffering from Parkinson's disease. The tremor is, however, much more rapid. This condition developed as a result of the psychical shock incident to the death of his mother. There is in addition agoraphobia and basophobia. The group of symptoms in both these cases represents a condition which Raymond regards as distinct from hysteria. Psychasthenia has been suggested to include these symptoms. In the condition of Psychasthenia the functions of the will and attention are affected and the patient is at the same time agitated and feeble. At the moment when the patient makes a voluntary movement or effort there is such an interruption that the intended action can not be carried out but in the place of it a series of elementary movements results. The mental excitement causes a variety of phenomena sometimes of a visceral nature, sometimes in the form of an attack of anxiousness and at times, motor in character, in the way of convulsive attacks which might easily be mistaken for hysteria. These diffuse states of agitation were present in the two patients described above.

2. *Tonic Tic*.—A case of a young soldier who was forced to leave the service on account of general weakness and who for the past five years noticed that in attempting to write, the right hand would be seized by a tremor which made writing impossible. He also noticed that at such times his hand would be pronated and adducted. The position of the hand was as follows: The lower arm and hand presented their dorsal aspect, the hand slightly flexed upon the arm with the fingers slightly flexed. In spite of this attitude there was no evidence of atrophy. Electrical examination was normal. The diagnosis of tic was decided upon after the exclusion of organic diseases of the nature of neuritis or myopathy. Following the recommendations of Meige and Feindel the therapy of this condition was mainly

a re-education by immobilization of movements and by the movements of immobilization. The author believes that the outlook in this case is favorable.

3. *Infantile Myxedema*.—A case of a young girl eighteen years of age who presented a typical picture of infantile myxedema. In addition to these symptoms there were to be seen on various parts of the body the double pigmentation characteristic of Recklinghausen's disease. On the upper external aspect of the thigh on the left there was a large nevus which presented the appearance of a keloid. A good photograph illustrates the article.

4. *Radial Hemimelia*.—A description illustrated by a radiograph of a case of radial hemimelia of the left extremity involving principally the first phalanx of the thumb and complicated by an atrophy of the thenar eminence of the right hand.

5. *Tongue in Epileptic*.—A description of a congenital malformation of the tongue which was found in a case of periodic insanity. The tongue presented a very curious morphological appearance on the superior surface consisting chiefly in the abnormal character and position of the fissures and lines. The article is illustrated by a very remarkable photograph.

6. *Arthropathy and Resection*.—On account of the rarity of surgical treatment of the arthropathies the report of this case is of value. Man thirty-four years old with a history of syphilis had a mal-perforant which healed. An arthropathy of the right tibio-tarsal articulation developed with trophic changes. The case was one of early tabes with the spinal symptoms as yet little developed. A resection of the tibial plane without anesthesia and ablation of the astragalus was carried out. The foot was then immobilized. There was a good result both from a functional and an orthopedic point of view.

SCHWAB (St. Louis).

#### NEUROLOGISCHES CENTRALBLATT

(Vol. 22, 1903, No. 7, April.)

1. Monochromatopsia and Color-blindness. W. ALTER.
2. The Cause of Acromegaly. E. SCHÄFFER.
3. The symptomatology of Peripheral Facial Palsies. M. ROSENFELD.

1. *Monochromatopsia*.—Alter records an interesting case of a thirty-four-year-old patient suffering from general paresis, who suddenly saw everything in green color. This lasted for thirty minutes. Eye examination next day showed a left-sided hemiachromatopsia, but normal color perception. Several similar attacks came on shortly afterwards but after two of these attacks there was also total loss of color perception, which soon disappeared. There were no accompanying cerebral symptoms of any kind during these attacks. Alter then discusses the various theories explaining these symptoms and agrees with those of Kenowski.

2. *Acromegaly*.—Schäffer records a case of acromegaly with some peculiar symptoms. Woman, fifty-one. Mother died of diabetes, and for 4-5 years before death had the same symptoms of enlargement of head, face, hands and feet that the daughter has. The symptoms of patient date back seven years; has symptoms of diabetes with sugar in urine and polyuria. Enlargement of bones noticed five years ago. Has severe pains, especially in back, arms and legs. Other symptoms those of ordinary acromegaly. Eye examination shows bilateral entoptic contraction of visual fields, more on left side, and atrophy of the optic nerves, especially on temporal side not so marked in the left eye. Schäffer explains these symptoms by a basal tumor involving the hypophysis cerebri and pressing upon the optic chiasm. A radiogram of the hand accompanies article.

3. *Facial paralysis*.—Rosenfeld records six cases of peripheral facial

palsy in which he calls attention to the following, assuming the cases to be left-sided: (1) Right-sided closure of eye possible. No movement of other eyelid. (2) Isolated closing of eyelid, paralyzed side more or less impossible. (3) Bilateral closure of eyelids possible. (4) Inability to close the eyelid alone, in facial palsies which here recurred. This might be of value in differentiating between hysterical facial palsy.

(Vol. 22, 1903, No. 8, April 16.)

1. Specific Autocyto-toxine and Antiauto-cyto-toxine in the Blood of Epileptics. Preliminary Contribution. C. CENI.
2. Further Contributions to the Dietetic Treatment of Epileptics. R. BALINT.
3. Clinical Contributions to the Cause of the Disturbance of Consciousness. SORGE.
4. The Functions of the Caudate Nucleus. W. STRIDA.

1. *Blood of Epileptics*.—Ceni immunized rabbits against the serum of epileptics, and then injected the blood serum of these animals into epileptics. It was shown that this blood serum had both a local and a general effect even in small doses as 0.5 c.cm. The local effect consisted in a redness and swelling at the place of injection which lasted for some days. The general effect was one of acute poisoning, a rise of temperature to 39 degrees C., and a mental confusion like that of status epilepticus with convulsions, which lasted several days. These results resembled what was obtained by injecting the blood serum of one epileptic into another epileptic, but were not nearly as constant. Injection of normal serum of rabbits into the blood of epileptics produced no change. Serum of rabbits injected with the normal blood serum of man produced in the blood of epileptics certain toxic symptoms as are found in cytotoxic serum. He also injected into the blood of non-epileptics blood serum of rabbits immunized against the serum of epileptics and that injected with the serum of normal persons, and obtained negative results. As a result of these observations he observes that the serum of epileptics, injected into rabbits, is able, through a reaction of its organisms, to produce a substance which has a toxic, and on an epileptic, a specific action. These results also show that there is a specific toxic substance in the blood of epileptics, a autocyto-toxine, which is produced in the organism by the same mechanism as the cyto-toxine. Ceni then discusses the physiology of these experiments and comes to the following conclusion. That in the blood of epileptics together with a specific autocyto-toxin there inculcates also an anti-autocyto-toxin. This antitoxic principle is not free in the living plasma, but is found in the blood in a latent condition, and is dependent in the cellular elements of the blood from which it is obtained by a pleagolytic process.

2. *Dietetic Treatment of Epileptics*.—Balint, to determine the results obtained by a longer dietetic treatment of epileptics, treated a series of six and five patients for periods lasting from five months to one and one-half years. A diet of milk, butter, eggs, fruit and bread in which bromides were substituted for salt, was given. In the first series the number and intensity of the convulsions were reduced 78 per cent. It was difficult to keep up the treatment, as the patients' appetites grew poor on account of the sameness of diet, which had to be changed. The general nutrition was good. Brominism resulted in some cases, but this can be avoided by changing the diet. The treatment is recommended for further trial.

3. *Disturbances of Consciousness*.—Sorge records a case of hysteropilepsy with rather interesting disturbance of consciousness.

4. *Function of the Caudate Nucleus*.—Stieda, to determine the function of the caudate nucleus experimented on dogs. Two to three weeks



before the operation, the motor cortex was removed so as to produce a secondary degeneration of the motor fibers in the internal capsule. This was done so as to avoid irritation of these fibers when the current was applied. The caudate nucleus was exposed to the eye by cutting into the lateral ventricle. The blood pressure, respiration curve, and the amount of pressure in the bladder were carefully registered. The irritation was produced by an electric current. The results were as follows: Irritation of the caudate nucleus, when the whole motor cortex was removed, produced no muscular twitchings. If the rim of the cortex was only removed, associated eye movements were obtained, but if the surface of the posterior central convolution was also removed, these movements were absent. The blood pressure was heightened and respiration became slow and deep. Stieda thinks that the change in respiration is a reflex process and that the blood pressure curve is a result of this. The bladder contractions were increased, especially so if the optic thalamus, in the central gray matter surrounding the 3d ventricle, was irritated, on which it probably depends. No temperature changes were noticed. The function of the caudate nucleus is still unknown.

(Vol. 22, 1903, No. 9, May 1.)

1. A Contribution to the Question of Peripheral Origin of Sensory Fibers in Mammals. G. BIKELES and M. FRANKE.
2. Chronic Anterior Poliomyelitis and Syringomyelia. G. ROSSOLIMO.
3. A Contribution Regarding the Influences on Physiological Irritability. R. LEVI.

1. *Peripheral Origin of Sensory Fibers in Mammals.*—To determine the question whether spinal sensory nerve fibers had their origin in the periphery in man as is contended by some writers, especially Pierre Marie, the authors decided to resect certain nerves in the anterior and posterior extremities of different animals. They used guinea pigs, rabbits, cats and dogs. In the guinea pigs and rabbits, the median, ulnar, radial and sciatic nerves were examined, and in the cats and dogs only the sciatic nerve was taken. In these nerves one and one-half to 2 cm. long pieces were resected and the animals were allowed to live from eight to thirteen days. In the examination pieces of the nerves were taken farthest away from the seat of injury, so that traumatic reaction could be excluded. The central nerve fibers were examined mostly by the Marchi method, and only very few sections were stained in combination with the Azonlay stain, while the peripheral part of the nerves after being prepared by the Marchi method were stained by the Azonlay stain. Serial longitudinal sections were cut. In all the peripheral portion of the nerves of every animal degenerated fibers were found. No nerve was normal, nor was the degeneration equal. In the central portion of the nerves no degeneration could be found. As a result of these experiments, Bikeles and Franke conclude that the hypothesis that sensory nerve fibers have an origin in the periphery in mammals, is without ground, and that in man the sensory spinal nerve fibers do *not* have their origin from cells in the skin, tendons or aponeurosis.

2. *Chronic Anterior Poliomyelitis and Syringomyelia.*—Rossolimo reports a very interesting case of chronic anterior poliomyelitis and syringomyelia. Two other similar cases are on record. The patient, thirty-five years; family and past histories are negative. He first complained of a dull aching pain in his left shoulder, followed soon after by a weakness in the whole left arm, muscular twitchings and beginning atrophy. This process gradually progressed, involving the left lower extremity, then the right lower extremity and finally the right arm. There is contracture of the right hand. Power is greatly diminished in all extremities. No sclerosis. Atrophy is generally marked, especially in shoulders and distal extremi-

ties. Electrical excitability is greatly diminished. The patellar reflexes are exaggerated, Achillis jerks reenforceable, the right biceps and triceps reflexes normal, the left diminished, the abdominal, cremaster and plantar reflexes are weak. Bladder and bowel functions are normal. Sensation normal except that there is diminution of pain sense in the terminal phalanges of the three last fingers of the left hand. Muscle sense normal, and there is cyanosis of the hand and foot and hyperidrosis. Pain on pressure over nerve trunk. Man died without change of symptoms. Post-mortem and microscopical examination was made, which showed a cavity in the central part of the spinal cord beginning in the 2d cervical segment and ending in the 4th dorsal segment. The cavity attained its largest dimension opposite the 3d cervical segment and was more towards the left side, involving from the anterior commissure, to the anterior part of the posterior bundles. The cells of the anterior horns of the spinal cord were greatly diminished in number, in varying degrees of atrophy; there was a small cell infiltration around the blood vessels, increased amount of glia substance and spindle cells in the gray matter of the anterior horns, while the anterior nerve roots, peripheral nerves and muscles showed simple atrophic changes. The posterior roots and tracts were normal. The author then discusses the case and thinks that there was here two distinct and separate processes. He reviews the literature of the other cases of chronic anterior poliomyelitis reported, and calls attention to the fact that in these cases the cells in the lateral aspect of the anterior horns of the spinal cords are spared, and that the atrophy follows the distribution of the anterior spinal artery, especially its branch in the sulci.

3. *Physiological Irritability*.—The irritability of muscles can be influenced in three ways: by work, massage and electricity. Mann was one of the first to study systematically the manner in which the irritability was altered by a faradic current, using an induction current of different strength and duration. He came to the following conclusions: 1. Very weak currents, whose strength was below the power of producing contraction, and continued for several minutes, did not alter the faradic irritability. 2. Stronger currents, which produce contraction of a muscle, diminish the irritability depending upon the intensity and length of application. 3. Regularly applied faradism will after several days produce a heightening of the irritability of the faradized muscle or nerve. Levi confirms these experimental findings, but his results were very inconsistent. He endeavors to explain this. The resistance of the skin, the apparent difference in different prisms, some responding quicker than others, the tension of the muscles, the temperature, the apparent difference in the nature of the muscles, and the difficulty in exactly localizing the nerve or muscular points, most probably caused the inconsistency of the findings.

(Vol. 22, 1903, No. 10, May 16.)

1. Observations on Ascending Degenerated Fibers in the Pyramidal Tracts and Remarks upon Judging of Marchi Preparations. K. PETRÉN.
2. Psychosis in Pernicious Anemia. H. MARCUS.
3. A Case of Primary Tonic Facial Spasm with Muscle Quivering. L. NEWMARK.

1. *Ascending Degenerated Fibers in the Pyramidal Tract*.—Petrén, in a case of traumatic transverse lesion of the 1st dorsal segment of the spinal cord traced ascending degenerated fibers as far as the pons where the examination ended. The Marchi method was employed. The degeneration was equally intense, more so, however, in the lateral than the an-

terior pyramidal tracts. Similar observations have been recorded by others. In the whole region of the pyramidal tract numerous abundant black granules were found which were more numerous at the motor decussation in the medulla where the fibers were cut obliquely. These black granules represent intensely degenerated fibers, which in a longitudinal section are more easily to be made out than in cross sections. Thick cross sections do not show as many of these grounds.

2. *Psychosis in Pernicious Anemia*.—The patient was thirty-seven years old with good past history. Without decided anemia, there was a change in his disposition, he became irritable, wrote long letters and made exorbitant purchases and had ideas of grandeur. As his anemia became more pronounced, the patient became depressed and somnolent. The anemia gradually disappeared and his mental condition correspondingly improved.

3. *Primary Tonic Facial Spasm*.—Newmark records a very interesting case of a twenty-three-year-old medical student who had a right-sided spasm in the distribution of the facial nerve. The whole side of the face was sharply drawn to the right. Besides there was a quiver of the muscles of the right side of face including the platysma myoides. This was constant and was not so pronounced in the supraorbital distribution. There was no paresis or paralysis of the seventh nerve, and no hysterical stigmata. Newmark thinks this is a similar case to the one Bernhardt reported.

WEISENBURG (Philadelphia).

#### ALLGEMEINE ZEITSCHRIFT FUER PSYCHIATRIE

(Vol. 60, 1903, Part 4.)

1. Pathology of Reading and Writing. G. WOLFF.
2. Cerebral Atrophy and Cerebellar Atrophy. TH. BRUDER.
3. Dementia Præcox. A. BERNSTEIN.
4. General Paresis. G. SCHÄFER.
5. Treatment of General Paresis. J. DONATH.
6. Hysterical Symptoms in Organic Brain Lesions. E. THOMA.
7. Chemical Constitution of the Brain. F. N. SCHULZ.
8. Mycosis Fungoides and Insanity. G. SIPOCZ.
9. Statistical Studies.

1. *The Pathology of Reading and Writing*.—The author calls attention to the necessity of including an inquiry as to the former attainments, in reading and writing, when investigating cases presenting disturbances of these faculties. He gives histories of three cases in which, with ability to speak, and to copy written or printed words, and sentences, there was inability to read or to comprehend the latter, and to write from dictation. These patients were all found to be of low intelligence, and close inquiry proved that, while they had learned to write, and to copy mechanically, they had never learned to read. All of these cases presented mental disturbances, and in one of them motor aphasia had followed an injury to the head. In this case, after trephining, the speech disturbance improved, while the inability to read persisted. A fourth case, that of a woman, thirty-two years old, suspected of being syphilitic, and having surely cardiac and renal disease, after a right hemiplegia, presented the following peculiar disturbances. While there was no motor aphasia, what was said to her was understood, and she could name correctly objects exhibited to her, she had almost entirely lost her vocabulary for spontaneous speech, and had the greatest difficulty in finding the proper substantives for answering a question. A certain number of words she could still read, when either written or printed, but a far greater number could not be read at all; others, again, she read incorrectly. Placing these words in



tabular form, the author attempts to study them in their probable former associations in the mind of the patient. The readability, he thinks, depends not so much upon the form, as upon the meaning of the word. This patient again could copy, and write from dictation, using the left hand, but could not write the name of an object, though she might tell it correctly, or read what she had written. She died in another attack of apoplexy, and the autopsy disclosed an old apoplectic focus in the third left frontal convolution, with fresh hemorrhage into the ventricles and basal ganglia, and numerous small hemorrhages in the right frontal lobe. The author adds a short note on the case of a congenitally defective person, who could read quite readily, but could not write or spell.

2. *One-sided Cerebral Atrophy, with Crossed Cerebellar Atrophy in a Case of General Paresis, with Focal Symptoms.*—An interesting clinical history, with discussion of the anatomo-pathological findings, in a case presenting typical symptoms of the dement form of general paresis, and at the same time showing after an apoplectiform seizure, a right hemiplegia. The whole brain was markedly shrunken, weighing without the membranes 960 grm. The right hemisphere of the cerebrum weighed 480 grm., the left 326 grm., the right half of the cerebellum 49 grm., the left 77 grm. The results of a complete histological examination are given in detail. Suffice it to say here that great increase of neuroglia, and other evidences of atrophy of nervous tissue, were specially observed in the left cerebral, and in the right cerebellar hemispheres.

3. *Dementia Præcox.*—Since there seems to be a considerable confusion as to what is meant by dementia præcox, the author announces at the start that he uses this designation for the complex of symptoms to which it was applied by Kraepelin, with whose name it is particularly associated. He next discusses the characteristic symptoms of the disease. The peculiar muscular disturbances he regards as forming its chief characteristics. These he describes at some length, contrasting them with the cataleptoid conditions found in other mental troubles (as circular stupor, etc.), from which they differ in the presence of distinct muscular rigidity (hypertonia). These muscular symptoms seem involuntary and entirely independent of the mental state of the patient. The terms katatonia, and katatonic, as applied to these manifestations, he thinks to some extent misleading, as the term was, as originally used by Kahlbaum, included also in a different class of cases. Hence he suggested that, instead of dementia præcox, the term dementia paratonica progressiva, or shorter paratonica progressiva, be used.

4. *General Paresis.*—Histories of two cases of general paresis. In one the disease extended over sixteen years, and perhaps longer. In the other there was practically a total remission during nearly two years, death six years from the beginning of the disease, with characteristic anatomical findings.

5. *The Treatment of General Paresis, and of Other Toxic and Infectious Psychoses with Salt Infusion.*—Referring to the work of Mott and Halliburton, and others, and reasoning from the well established beneficial effect of massive injections of salt solutions, in other conditions, the author was led to try the effect of such treatment in general paresis, and other psychoses, which he regards as due to the retention in the system of toxic products of metabolism. He uses a solution which he claims is isotonic with the blood serum, and whose formula is as follows:

Potassium Sulphate ( $K_2SO_4$ ).....	0.25
Potassium Chloride (KCl).....W.....	1.00
Sodium Chloride (NaCl).....	6.75
Potassium Chloride (KCl).....	1.00
Sodium Phosphate ( $Na_2HPO_4 \cdot 12H_2O$ ).....	3.10
Aquæ dest. ....	1000.00

This is sterilized in a glass flask holding about 2 litres, allowed to cool to 40 C., and from 300 to 1,000 cc. are injected into the subcutaneous tissue in back, breast of hypochondrium. It is stated that high intestinal injections of two or three litres are also of efficacy. The special arrangement of apparatus is illustrated by a figure. These injections are made every three or four days. At the start they are generally followed by slight rise of temperature, which does not last over twenty-four hours, however. No other untoward effects were observed. The author reports nine cases treated—of these, six general paretics, one patient with cerebral syphilis, one case of tetany, and one of melancholia. In all there was marked improvement after the injections. The paretics showed decided amelioration both in mental and in somatic symptoms. He does not claim that the measure is capable of curing general paresis, but thinks that it is of decided value, especially in the early stages.

In insane patients of all sorts who are much reduced, and are suffering from inanition and toxic symptoms, the method seems worthy of more extended trial.

6. *Hysterical Symptoms in Organic Brain Disease.*—The author, E. Thoma, gives short histories of four cases, respectively of tubercular meningitis, cerebral syphilis, multiple sclerosis, and brain tumors, in which there were typical manifestations. He then proceeds to a discussion of the mode of origin of hysteria, which he thinks arises from such cause as faulty metabolism or auto-intoxication acting upon a constitution more or less hereditarily predisposed. This disturbance of metabolism in the brain he thinks may occur as a result of organic disease, and may give rise to symptoms which, both in character and in mode of production, are in no way different from those of hysteria without discernible lesion. To these symptoms he thinks the term hysterical is properly applicable, since they are not necessarily associated with the organic disease.

7. *The Chemical Constitution of the Brain.*—A short review of our present knowledge of the subject, especially as to the composition of the myelin. Largely a criticism of a recent book by Thudicum.

8. *A Case of Insanity Arising upon a Basis of Mycosis Fungoides.*—The case of a woman of fifty-seven years, who had suffered for ten years with generalized mycosis fungoides, and who developed the picture of a paranoia, with marked ideas of persecution, by electrical, and other local applications, to the skin, and auditory hallucinations. The author considers as etiological factors, the general bodily exhaustion due to loss of rest through the perpetual itching, and the paresthesia caused by the local lesions which determined the nature and location of the delusions.

9. *Statistics of Persons Committed to German Institutions for Examination as to Their Mental Condition, During the Years from 1895 to 1900.* Unsuitable for abstraction.

C. L. ALLEN (Trenton).

(Vol. 60, 1903, Part 5.)

1. *Revision of German Criminal Code.* GERLACH.

2. *Epileptic Institutions.* H. STAKEMAN.

3. *Medico-Legal Observations on Theft during Pregnancy.* H. KORNEFELD.

1. *On the revision of the German Criminal Code.*—Unsuitable for abstraction.

2. *What Special Arrangements are Necessary in an Institution for Epileptics?*—The author makes a strong plea for the establishment for epileptics of special institutions, both public and private. He gives a résumé of the special arrangements necessary, laying stress upon the avoidance as far as possible of the appearance of confinement, and upon the providing of

proper instruction for the younger, and of suitable employment for the older patients, with due attention to exercise, recreation and amusements. Diet should be carefully selected, and should consist mainly of vegetable food. The corps of attendants should be selected, and trained in the care of epileptics. According to Wildermuth, an epileptic institution should contain: (1) A department for youthful patients capable of receiving instruction. (2) A department for patients working at trades—separating half-grown from grown persons. (3) A building for farm workers. (4) A department for epileptic idiots. (5) An insane department. (6) A hospital. To which the author would add: (7) A tuberculosis station. He favors the open door system in general, but recognizes the necessity for a special closed building for disturbed patients, and thinks that in this a certain number of isolation rooms is indispensable. Restraint by camisole he finds rarely if ever necessary. About medicinal treatment, he says little except to remark that the bromide and hypochloruration treatment of Toulouse and Richet, while undoubtedly reducing the number of fits, had to be given up on account of the resulting impairment of nutrition. He adds an extensive bibliography.

3. *Medico-legal Observations on a Case of Theft During Pregnancy.*—Unsuitable for abstraction.

C. H. ALLEN (Trenton).

#### JOURNAL DE NEUROLOGIE

(Vol. 8, 1903, No. 9.)

1. *Tumor of the Spinal Canal.*—F. Raymond, a clinical lecture, delivered at the Salpêtrière, giving the diagnostic points, in a case of a tumor compressing the dorsal region of the spinal cord.

(Vol. 8, 1903, No. 10.)

1. Influence of Menthol on the Cutaneous Nerves. Mlle. I. IOTAYKO.

2. Intention Tremor in Repose. DE BUCH.

1. *Menthol.*—The authoress studied the effect of menthol used in the form of a crayon, rubbed on the skin of the temporal region, in fifteen university students. Menthol she finds an excitant of nerves transmitting cold sense (hence the sensation of cold produced) and to a less extent of those for heat. On the contrary it markedly depresses the nerves for pain, and to a lesser degree those for touch. For measuring pain sense, she used the analgesimeter of Cheron, for touch sense, the ordinary compass esthesiometer.

2. *Intention Tremor and Tremor in Repose.*—The author reviews the several theories concerning, and the various autopsy findings in cases of tremor, and describes a case of intention tremor which he recently observed. He concludes that intention tremor and tremor in repose should be sharply dissociated, the first being centripetal in origin, allied to asynergy and ataxia and dependent upon a lesion of the medullo-cerebello-cortical paths; the second being centrifugal and motor due to variation in the muscular tonus, dependent upon lesions of the extra-pyramidal tract, and to be placed alongside of hyperkinesic phenomena as chorea and myoclonus.

(Vol. 8, 1903, No. 11.)

1. Tumor Spinal Cord. F. RAYMOND.

2. Atrophy of Left Leg and Hypertrophy Right Leg. GLORIEUX.

3. Muscular Atrophy. GLORIEUX.

1. *Another Case of Tumor of the Spinal Canal.*—A clinical lecture upon a case of tumor affecting the dorso-lumbar region.



2. *A Case of Atrophy of the Left Lower Extremity, and Hypertrophy of the Right Lower Extremity.*—History of the case of a man twenty-two years old, who presented an atrophy of the muscles of the left lower extremity, with weakness and some pain, in the knee, and hypertrophy of all the muscles of the right lower extremity, with exaggeration of patellar and Achilles tendon reflexes on both sides, but no rigidity or sensory disturbances. The author thinks that the occupation of the patient—that of a polisher—which involved much standing, may have played a causative rôle, and suggests that the hypertrophy of the muscles of the right limb is compensatory, since, the left leg becoming weak, the patient had grown accustomed to bear his weight chiefly upon the right leg. He hesitates about definitely placing the case, but is inclined to class it among the myopathies.

3. *Muscular Atrophy in the Left Lower Extremity.*—Another case, in a twelve-year-old subject, presenting atrophy of the muscles of the left lower extremity, most marked in the calf, with a peculiar swelling involving all the tissues, including the tibia, in the lower part of the left leg, but without change in reflexes, sensibility, or electrical reactions. The diagnosis in this case, he also thinks uncertain, but suggests the possibility of syringomyelia, in an early stage.

(Vol. 8, 1903, No. 12.)

1. New Researches on Localization. DR. AND MME. C. PARHON.

1. *New Researches on Localization.*—The authors (one of whom has already done considerable work in this direction), describe some experimental researches upon localization in the spinal cord, which they recently carried on. Working upon dogs, their method was to extirpate a muscle, and after some time to kill the animal, and to study by serial sections, the cord in the appropriate region, observing to what cell groups the resulting cell degeneration was limited. They claim to have located the nuclei of the respective muscles as follows. Splenius, in the antero-intermediate cell group, of the anterior horn in the first cervical segment. Sterno-mastoid (proper) in the internal portion of the central cell group, throughout the first cervical. Sterno-cleido-mastoid (other fasciculi) in the whole central cell group throughout the first cervical, and upper part of the second cervical, the cells occupying a more and more external position, until just before disappearing they nearly reach the external border of the horn. Brachialis anticus in the postero-external group, slightly forward, and outward from the biceps, whose nucleus is in the postero-internal cell group both in the sixth cervical segment. Flexor sublimis digitorum, in the postero-internal group, of the seventh cervical. Some cells to the outside of this are related to the fore limb, but could not be located more accurately. Extensor carpi radialis, in the postero-external angle of the horn, throughout the eighth cervical. Spinalis dorsi ("long epineux"), in a small group of cells situated near the antero-internal angle of the horn in the first four dorsal segments. Longissimus dorsi ("long dorsal"), in a cell group the continuation of the preceding which beginning in the fifth dorsal segment gradually enlarges in the lower dorsal and passes inward until before its disappearance in the third lumbar, it occupies the antero-internal angle of the horn. Sartorius, in the antero-external group of the third and fourth lumbar segments. Obturator slightly behind, and internal to the sartorius. Quadriceps femoris in a large cell group occupying the extreme portion of the horn behind the sartorius, in the third and four lumbar. Adductor longus, in the central group anteriorly, adductor magnus, and adductor brevis in the central group posteriorly, all in the third and fourth lumbar. Careful investigation failed to locate the bladder center. A number of figures subjoined do much to make clear the relative positions of the

nuclei. In these figures the authors have also indicated the locations of the nuclei of other muscles as given by different observers. They add some cuts showing the localizations of the nuclei in the cervical and lumbar enlargements in man, as far as is determined. These show quite a close agreement, with those made out for the dog. Proceeding to the interpretation of these findings, they take up the question of whether these localizations are of muscles or of functions. While they lean to the latter view, they are of the opinion that more work is needed for the complete elucidation of the question, and what seems to be necessary is to continue experimental and anatomico-clinical research until all the muscles have been investigated. In any event the contradiction, if any, is rather one of terms, for in their opinion functional requirement causes the differentiation of the muscles, which is only a repetition of the fundamental morphological law, "The function makes the organ."

C. L. ALLEN (Trenton).

MONATSSCHRIFT FÜR PSYCHIATRIE UND NEUROLOGIE

(Vol. 14, 1902, No. 1.)

1. The Idea and Significance of Dementia. F. TUCZEK.
2. The Pathogenesis of the Symptoms in Persons Restored after Hanging. W. ALTER.
3. The Leg Reflex of Oppenheim. R. CASSIRER.
4. Remarks upon the Course of the Fibres in the Middle and Intermediate Brain of the *Tarsius spectrum*. T. ZIEHEN.
5. The Pathology of Paralysis of the Peroneus. S. DANS.

1. *Dementia*.—Tuczek gives a critical analysis of the varying opinions regarding the nature of dementia. It is a loss or defect of the intellectual capacity. The intellectual capacity is represented by a normal ability to learn, and to employ that which has been learned. The defects that occur in the various psychoses may involve any or all of the intellectual components, and according to Tuczek, only in an acquired dementia does such involvement of all the complements actually occur. As, however, the conditions giving rise to this may be various, it is a point worthy of investigation to what extent the etiology influences the manifestations. He then gives the following postulates upon which judgment should be based. First, the determination of the normal, moral and intellectual development; second, that when a man acts in accordance with his highest intellectual and moral development he is not criminal; and, third, that occasionally conditions may be so severe as to overcome the normal, intellectual, and moral inhibition. In cases of dementia there is actually a quantitative loss. The question arises whether quantitative diminution in some of the faculties can be regarded as dementia. Another important question is that there can be no doubt that certain qualities may disappear in dementia, and at first give rise to isolated symptoms such as love of agreeableness in social intercourse in senile dementia, or in dementia præcox. It is more difficult to decide whether temporary diminution in the intellectual qualities should also be considered dementia. Many forms of undoubted dementia such as parietic dementia and dementia præcox, either have remissions or advance irregularly. There is at any rate, no relation between the pathological changes and the intellectual disturbances. The paper concludes with a description of the various forms of mental disease in which dementia occurs.

2. *Restoration after Hanging*.—Alter reports three cases of persons who were resuscitated after attempted suicide by hanging. All three were insane; two suffering with melancholia, and one from paranoia with

moderate dementia. In all three there was total loss of consciousness, and two required artificial respiration before recovering. The first symptoms were tonic and clonic spasms, gradually passing into general convulsions with enuresis, injury to the tongue, and opisthotonos. There were peculiar kicking movements of the legs, and swinging and rolling movements of the arms. Finally the patient became rigid, which state continued for a longer or shorter period, and was replaced by the irregular movements. The patients usually recovered consciousness suddenly, but there was evidently some mental disturbance, particularly the total amnesia for the suicidal attempt, which last from two to six days. There was also retrograde amnesia, and an indication of an anterograde amnesia. Alter does not believe that these conditions are to be explained by regarding them as hysterical. He discusses the different theories, calls attention to the similarity of the symptoms to those that occur in cases of Lissauer's paralysis after apoplectic attacks. He regards the condition as probably due to disturbance in the nutrition of the cortical cells as a result of the alterations in the cerebral circulation by the strangulation.

3. *Oppenheim's Leg Reflex*.—Cassirer has studied Oppenheim's reflex. This consists of a plantar flexion of the toes when the skin of the inner side of the calf is stroked vigorously with a blunt instrument, for instance, the head of the percussion hammer. He has experimented on a large number of persons, normal, or suffering from various forms of nervous trouble. He finds that in normal persons it is almost constant. In cases suffering from functional nervous disease it is less frequent, being absent in 34.2 per cent. In cases of tabes it is still less frequent, but when present it is normal in character. It was found in 46 per cent. of the cases examined. In cases of organic disease of the pyramidal tracts the response to the irritation is altered; there is a tonic dorsal flexion and a spreading of the toes and contraction of the anterior tibia muscle, and sometimes of the peroneal muscle. In 41 cases of spastic parietic symptoms it was almost invariably present. In 40 of these cases which were carefully studied, the reflex was pathological in 39, and in one it was occasionally doubtful in character. In cases of cerebral hemiplegia the results were less certain.

4. *Tarsius Spectrum*.—Ziehen contributes an article upon the microscopical anatomy of the brain of the *Tarsius spectrum*, concerning himself particularly with the course of the fibers in the region of the corpora quadrigemina, the thalamus, the tegmentum, the crus, and the pons. The facts are so concisely stated that it is impossible to reproduce them adequately in an abstract. The reader is therefore referred to the original article.

5. *Peroneus Paralysis*.—Dans continues his article upon paralyzes of the peroneus nerve, considering particularly birth paralyzes. These may occur in either the mother or the child; in the former during pregnancy or parturition, either as a result of infection, or pressure; in the child the paralysis of the peroneus usually occurs as a result of extraction by the foot. He mentions a number of cases that he has collected from the literature, and gives *in extenso* the following case, observed in Lenhardt's clinic: A boy of fourteen had always been weak, and had been forced to over exert himself at work. He was frightened by an automobile and afterwards had tingling pains in both legs. There was anesthesia of both legs, and shortly afterwards a bed sore, and difficulty in restraining the sphincters. The muscles of the peroneal group were found to be particularly paralyzed, and the patient had a distinctly stepper gait. It appears that these paralyzes due to fright are usually located in the lumbar region.



The lesion was probably a hematomyelia. He then discusses the infectious conditions, quoting numerous cases from the literature and the following case observed in Mendel's clinic: A man of forty years had had syphilis at the age of twenty; lately he had developed symptoms of locomotor ataxia. He indulged in alcohol to excess. An examination showed that there was slight loss of sensation in the right leg from the knee down, and paresis of the right peroneus. A year later this had improved. (The paper is still unfinished.) J. SAILER.

## REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(Vol. 7, 1903. No. 7, July.)

1. Observations on the Association of Ideas. HENRI PIÉRON.
2. General Paralysis with Combined Sclerosis accompanied by Syphilitic Accidents. CL. VURPAS.
3. Examination of the Cephalo-Rachidian Liquid. A. V.

1. *Association of Ideas*.—A critical review of the methods and results of study of the association of ideas so condensed as not to readily bear abstraction. The author calls attention in conclusion to the very different results attained by workers in this field and makes a plea for greater accuracy of work and a more detailed publication of the means used to reach conclusions. Certain of the published works are marked by great scientific accuracy, but there is still a great field for further work in this department of psychology.

2. *General Paresis*.—This case was admitted to the hospital March 31, 1897, suffering from all the classical symptoms of general paralysis—tremor, inequality of the pupils, slow response of pupils to light, abolition of patellar reflexes, dementia, seizures, etc. On May 2, 1898, she suffered from an apoplectic attack followed by aphasia and hemiplegia. Some months after this there developed on the back, just below the scapula on the right side, a typical, tertiary, syphilitic ulceration. The patient was put on iodide of potassium and the ulceration proceeded to cicatrization and complete cure only, however, after patient was put on a milk diet. Meantime the parietic symptoms progressed, the dementia became more marked, there was progressive emaciation, and she died May 14, 1901. The autopsy revealed the typical cerebral lesions of paresis besides a sclerosis of the cord. This sclerosis involved the pyramidal tracts, and the columns of Goll principally. The posterior columns were almost entirely sclerosed in the dorsal and lumbar regions, while in the cervical region, the columns of Goll alone were affected, while the crossed pyramidal tract was affected throughout. The author draws the following conclusions and inferences: (1) The existence of a syphilitic lesion during the course of paresis answers the objections to the specific etiology of paresis based on the absence of such affections. (2) The fact that treatment with iodide of potassium had no effect while patient was on a full diet, but was immediately efficient when she was placed on a milk diet, would indicate the possible advantages of hypochlorization with iodide treatment as with the bromides when it is desirable to augment the efficiency of the drug. (3) The lesions of the cord account for the absence of patellar reflexes and exaggerated reflexes of the upper extremities presented by this patient. (4) During the early part of the patient's residence in the hospital she could only walk when sustained on either side and was then ataxic and could not maintain the erect position. This case seems to show the rôle of Goll's column in maintaining the erect position. (5) The lower extremities were contracted while the patellar reflexes were lost. This would seem to indicate the independence of the reflexes and the muscular tone.

3. *Examination of Cephalo-Rachidian Fluid*.—This is a purely technical article that does not lend itself to abstraction.

(Vol. 15, 1903, No. 8, August.)

1. Some Methods of Treatment in Use in Foreign Asylums. SÉRIEUX.
2. Classification of Psychic Phenomena for Experimental Research. TOULOUSE, VASCHIDE and PIÉRON.
3. A Case of Commercial Precocity. PIÉRON.
4. Autopsy of Skull and Spine. MARCHAND.

1. *Treatment in Foreign Asylums.*—This article reviews the principal methods employed in the treatment of the insane especially those of recent origin and states succinctly the opinions and results of those who have used them. The treatment in bed is spoken of most highly for all cases in which bodily repose is indicated, and is especially recommended for the first few days at least following admission as the patient is then in the most favorable state for a thorough examination and appreciation of the physical condition.

The use of prolonged baths at a temperature of 34 to 35 degrees is also warmly advocated. Their use will often do away with the necessity of restraint, and experience has shown that the melancholiac will often eat as a result of them. The pack at 33 to 35 degrees is recommended for insomnia. For melancholia the opium treatment is warmly supported. The author also discusses mechanical and chemical restraint and advocates their abolition as far as possible except of course in surgical cases, and lays stress upon the advantages of liberty. He also believes that the use of alcohol in the form of wines and beers as used in English and German hospitals does actual harm rather than good.

2. *Classification of Psychic Phenomena.*—The purpose of this article is to arrange psychic facts solely with a view to a classification which will form a working basis for experimental study and not with a view to absolute accuracy, on a basis of scientific analysis or philosophic finality. Although modern psychology has modified the conceptions attached to such words as will, percept, etc., and no longer teaches classical division of mind in faculties, still for practical purposes those sub-divisions are still of value. Psychology is the science of the phenomena of consciousness from the introspective standpoint, the units of consciousness are sensations. True sensations are really capable of analysis and are really not simple, but chemistry has shown that the same is true of atoms and in one case as in the others the value of the hypothesis is not endangered.

From this basis the authors proceed to a classification of sensations which is physiological in basis, take up a discussion of states of consciousness, which are discussed from the standpoint of intensity, affectivity, objectification and affinity, and their synthesis into more complex states. He finally concludes with a purely psychological discussion of perception, conception, memory, association, imagination, judgment and reasoning.

3. *Commercial Precocity.*—A short note of a boy five and one-half years old who, without knowledge of reading, writing or figures could calculate values of commodities and determine the prices according to weight.

4. *Autopsy of Skull and Spine.*—A purely technical article giving methods of opening skull and spine, extraction, measurements and weights of the contents, and methods of sectioning.

WM. A. WHITE (Washington, D. C.).

## Book Reviews.

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TABES UND PSYCHOSE, EINE KLINISCHE STUDIE. VON DR. R. CASSIRER. S. KARGER, Berlin, 1903.

In this little book Cassirer discusses the relation of tabes to mental diseases. He has little to say regarding the alteration of the lateral columns or of the combined alteration of the lateral and posterior columns, occurring in parietic dementia; but confines his attention to the changes in the posterior columns, and endeavors to decide whether these are of the same character as those occurring in tabes dorsalis. He discusses the relation of ordinary tabes to the parietic dementia with alteration of the posterior columns, and to others forms of parietic dementia. Cassirer does not accept willingly the opinion that exhaustion is a cause of tabes and of parietic dementia. Syphilis is a cause of both, but it should not be argued from this that these two diseases are identical. The course of tabes is unlike that of paresis; very acute commencement and rapid progress are very rare in tabes, as are also repeated remissions, and all these are important distinctions, according to Cassirer. He shows by quotations from the literature how the views regarding the identity of tabes and paresis are at variance, and concludes that we shall act wisely if we look upon these diseases as distinct from one another. The remainder of the book is devoted to the occurrence of mental diseases in association with tabes. Paranoia rarely is found in a person with tabes, but then paranoia in a narrow sense, is an uncommon disease. Cassirer is unwilling to recognize a form of mental disease peculiar to tabes, but attempts to classify the symptoms under well recognized types. He believes it is certain that tabes may be associated with severe acute forms of psychoses that are not to be considered parietic dementia. SPILLER.

DIE PHYSIOLOGIE UND PATHOLOGIE DER COÖRDINATION, EINE ANALYSE DER BEWEGUNGSTÖRUNGEN BEI DER ERKRANKUNGEN DES CENTRALNERVENSYSTEMS UND IHRE RATIONELLE THERAPIE. VON DR. OTFRID FOERSTER, Assistent der psychiatrischen klinik der Universität, Breslau. Gustav Fischer, Jena, 7 marks.

In view of the large amount of attention that has been given to the subject of muscular incoördination, and more particularly to its application in the diagnosis of tabes and the rational therapy by means of the Frenkel exercises, Dr. Foerster's work will prove both of absorbing interest to those who would seek more light on the subject of ataxia, and of practical importance to those who are trying to follow out the fundamental principles of the Frenkel methods.

Under two separate portions the author discusses the physiology and pathology of motor coördination, and its application to the defects as found in locomotor ataxia, over two-thirds of the entire book being taken up with this latter subject.

The author develops his physiological features by a complete discussion of muscular antagonistic and synergistic groups, the relative capacity and use of each set determining the result according to a mentally required effect. The amount of control or coördination means, according to Foerster, the correct choice of the necessary amount of innervation. The paths of impulses, the sensory and motor and muscular theories of incoördination,



are thoroughly discussed, and the relationships of the different nervous segments to acts of muscular control are ably presented.

As intimated, the greatest volume of the work is given over to the discussion of the disturbances of coördination as seen in tabes, in which full references are made to the rationale of the Frenkel modes of therapy.

The work is an interesting one, and will unquestionably prove of value to the student of nervous pathology.

JELLIFFE.

DIE MITBEWEGUNGEN BEI GESUNDEN, NERVEN- UND GEISTESKRANKEN. VON DR. OTFRID FOERSTER. Gustav Fischer, Jena, 1.50 marks.

This is a second contribution of the authors on the physiology and pathology of coördination, a subject which he has covered so well from another standpoint in his "Physiologie und Pathologie der Coördination."

In this study of associated movements, made at the Salpêtrière, the Breslau Poliklinik, and the Breslau Insane Asylum, he discusses first associated movements under physiological conditions. He then takes up their study in peripheral paralyses; diseases of the pyramidal tract. Associated movement alterations in tabes, in chorea, in paresis, alcoholism, idiocy and psychoses associated with motor restlessness. His final chapter considers the theory of associated movements.

The study is presented in 53 pages and is well worth the consideration of the neurologist.

JELLIFFE.

LIFE IN MIND AND CONDUCT: STUDIES OF ORGANIC IN HUMAN NATURE. BY HENRY MAUDSLEY, M.D. The Macmillan Company. New York and London.

The earlier writings of this writer have always pleased and enthralled the reader, from their beauty of form and expression, their philosophic grasp and their intellectual stimulation. Dr. Maudsley has here given another real treat.

It has been an unfortunate trend of mind of most philosophers to become captious and critical, fault-finding and unsympathetic as they advance in years, and the plaint for the honesty and sobriety, the good sense and the wisdom of the days long gone by has ever constituted a tell-tale symptom of advancing age. We are glad, in the first place, to miss this narrow point of view in the mature work of our author, and, whereas there is no lack of the critical finger warning us of the follies and foibles of the age, there is to be found a larger and wider philosophic pointing out of the essentially onward evolutionary value in these many inconsistencies.

Kipling has confessed his borrowings, indicating Homer as a "fellow criminal," and it is not strange that Maudsley should introduce this discussion, with a humorous apologia of the extreme antiquity of all things, not excluding human speculations on the universe and on human nature. "As mankind did not first to begin to think in ancient Greece, nor first discover their moral principles in Palestine, the vulgar belief of so late an intellectual and moral beginning simply proves on what sure and blind a faith the thought of people can rest, circumscribed within their special epochs, and be counted new because new to them." How unnecessary much teaching and argument would become, stifled if this, truism almost, would be appreciated by the world at large in little as well as in big things. We fondly believe that even many modern medical journals, supposedly new and "ethical," would never have been started if their fatuous founders had dipped into the records of the past.

In thirteen chapters Dr. Maudsley rounds up, as it were, the general philosophy of human nature, considering such features as Life and Mind,

the Social System, Imagination and Idealism, an extremely interesting and suggestive chapter, particularly his discussion of the part played by *hypocrisy* and *lying* in the general evolution of conduct. The correlations with certain idealistic tendencies in paranoid states, while not touched on by the writer, are evident, and suggest a mode of scientific attack in undermining the foundations of paranoid delusions.

Ethical Theory and Action, considers Conscience, Morality, Patriotism, War and Peace. Religion, Philosophy and Science, make up another chapter. Nature, Mind, and Reason, outlines certain fundamental considerations bearing on education that may be pondered over to advantage by the father of a family, the teacher, ecclesiastical as well as lay, to the true ends of education and morality. In fact, this chapter, with the two following on Habit, Experience, Truth, and Education, Mental Culture and Character, state virile truths, paint vivid pictures and suggest vital lines of thought. Chapter X deals with Friendship, Love, Desire, Grief, Joy, in which these primary emotional states are ingeniously and instructively handled. The relationship of mind and matter, the influence of mental states on pain, are particularly illuminating.

Organic Variation and Heredity, Fate, Folly and Crime—a strong chapter on Pain, Life and Death, with a concluding chapter on the end and aim—make up the final chapters of this very readable and instructive book.

It is truly a relief to read a treatise of this type without having to consider the multitudinous terms of the newer psychological and metaphysical laboratory students. Modern hedonistic, algedonic theories and references to modern psychological hair-splitting and tiresome terms, so characteristic of the theses of the beardless boy student, who philosophizes on life before emerging from the nursery, are conspicuous by their absence—and in beautiful English the author has given us a helpful and inspiring volume, one that leaves a good taste in the mouth, and a youthful enthusiastic belief in optimistic interpretations.

THAYER.

MAGENERWEITERUNG, MOTORISCHE INSUFFICIENZ UND ATONIE DES MAGENS. VON HOFRAT DR. FRIEDRICH CRAMER nebst Einem Anhang über Chirurgische Behandlung bei Magenerweiterung von Dr. med. Albert Krecke. München, 1903.

The sixth lecture of this work is devoted to a discussion of the association of tetany with gastrectasis. The author states that in the usual form of tetany the muscular spasms affect principally the extremities and the disease usually ends in recovery, while in those cases associated with gastrectasis the muscular spasms more often involve the facial and eye muscles, and the mortality is 60 to 75 per cent.

He distinguishes three objective symptoms of this disease which relate to the nervous system and circulatory apparatus. The first is Trousseau's symptom, and consists of an increase or initiation of tetanic spasms on pressure of the great vessels or nerve trunks. The second, Chvostek's symptom, is the increased irritability of facialis and the motor nerves of the extremities. The third, the increase of the electrical irritability of the nerves. To these may be added disturbances of sensibility, analgesia, paresthesia, hyperesthesia, disturbances of the temperature and taste senses, etc.

The prognosis in these cases is very important, for many of them result fatally in a few days. To guard against errors of prognosis, the symptom of increased irritability should be sought in each case. Upon the supposition that the disease is due to a toxemia, the author recommends infusions and enemas of salt solution. WM. A. WHITE.

DIE ANWENDUNG VON BERUHIGUNGSMITTELN BEI GEISTESKRANKEN. MIT BESONDERER BERÜCKSICHTIGUNG DER BEDÜRFNISSE DER ALLGEMEINEN PRAXIS. Dargestellt von Professor H. PFISTER, 1. Assistent an der psychiatrischen Klinik Freiburg, i. B. Halle A. S., Verlag von Carl Marhold, 1903.

The author divides the therapy of insanity into dealing with the causes and into symptomatic treatment. The former is so rarely possible that the latter is practically alone available. He speaks highly of hydrotherapy for disturbed cases, but is strongly opposed to the use of the cold bath. The full bath at 35° C. from five minutes' duration to several hours (Dauerbad) and the hot pack are recommended. As no drugs are specific for the special forms of insanity, the drug treatment resolves itself into the use of sedatives and hypnotics. He strongly recommends scopolamine hydrobromate and paraldehyde. He is opposed on principle to the use of mechanical restraint, but acknowledges that it is at times necessary.

WM. A. WHITE.

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## News and Notes

A CLAIM OF PRIORITY FROM DR. ALFRED GORDON REGARDING TRICEPS AND BICEPS CLONUS.

Editor of the JOURNAL OF NERVOUS AND MENTAL DISEASE: On April 22, 1901, I exhibited before the Philadelphia Neurological Society a patient showing tea intoxication with spinal symptoms. I demonstrated then among other phenomena a clonus of the triceps and biceps muscles. The proceedings of the Neurological Society are usually published in abbreviated form and do not contain details. The paper concerning the case was published in full in the *Therapeutic Gazette* in the July number of the same year. The above mentioned forms of clonus are described in this article on pages 444 and 445. ALFRED GORDON.

REPLY FROM DR. T. H. WEISENBURG.

Editor JOURNAL NERVOUS AND MENTAL DISEASE. Sir: In reply to Dr. Gordon's communication I would say that there is no mention of triceps or biceps clonus in the report of his case in the proceedings of the Philadelphia Neurological Society.

Dr. Gordon refers to the following sentences, which are copied from his article: "She had very much exaggerated knee, wrist and elbow jerks, which were more marked on the right side than on the left. At each stroke of the patellar, biceps, or triceps tendons a pronounced reflex was followed by repeated clonic movements of legs and forearms, what might be called a knee, wrist, and elbow clonus." Again he says: "\*\*\* but the patient has knee, wrist and elbow clonus instead." Dr. Gordon merely mentions "a repeated clonic movement of the forearms, an elbow clonus," in giving the clinical history of the case, and does not dwell especially upon the phenomena in question. No reference is made to an independent biceps and triceps clonus, or to the fact that these phenomena have not been previously described. He makes no mention of finger clonus whatever. T. H. WEISENBURG.



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THE  
Journal  
OF  
Nervous and Mental Disease

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Original Articles.

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A CASE OF CHRONIC INTERNAL HYDROCEPHALUS IN A  
YOUTH.\*

E. E. SOUTHARD, M.D., OF BOSTON,

FIRST ASSISTANT IN PATHOLOGY, BOSTON CITY HOSPITAL;

AND

W. F. ROBERTS, M.D., OF BOSTON.

FORMER PATHOLOGICAL HOUSE-OFFICER, BOSTON CITY HOSPITAL.

Following is a case of chronic internal hydrocephalus occurring in a youth ten years after fracture of the skull. After death were found organized basal meningitis and focal sclerosis of the right anterior choroid artery:

An Irish boy of seventeen entered the Boston City Hospital, August 30, 1902, with symptoms and signs of heightened intracranial tension.

Ten years before he had suffered a compound fracture of the skull to the left of the vertex, from which he was perfectly recovered by the end of four months. Seven and a half years before the present illness, he suffered a somewhat severe concussion of the occiput by a kick by a horse; there was considerable swelling, apparently with infection; but he recovered in the course of time with repeated dressings, all the while an out-patient. He had recently, until within seven months, worked in a harness shop. Habits were excellent; the family history irrelevant. Scarlet fever and malaria were the only acute diseases remembered.

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\*From the Pathological Laboratory of the Boston City Hospital.

During the seven months preceding his entrance, he had developed a rather characteristic set of symptoms:

1. Vertigo.
2. Unconsciousness at irregular intervals in attacks lasting two minutes. There was a peculiar aura, consisting of numb feelings about the eyes and in the tongue. Then followed agitation of limbs, gradually shared by the whole body. The tongue was not bitten in the attacks.
3. Projectile vomiting, usually after breakfast, occasionally after other meals, without retching or nausea. This had ceased three months before entrance.
4. Headache, general and nearly constant for the seven months.
5. Blindness, absolute for the last nine weeks. The "mist" had begun three months before in the left eye. When examined by one of the writers (W. F. R.) at the Massachusetts Charitable Eye and Ear Infirmary, five months before entrance at the City Hospital, there were already well marked choked discs, and the symptoms already strongly suggested brain tumor.

Physical examination showed no paralyses or sensory disturbance, except bilateral loss of smell and blindness. The tongue was protruded in the middle line. Movements of the face were symmetrical. The reflexes were scarcely affected: the left knee-jerk, absent; Babinski reflex and ankle clonus, absent. These phenomena, with ataxia, both standing and walking, pointed to lesion in the cerebellum (Dr. W. N. Bullard).

The operation was performed by Dr. J. C. Munro six days after entrance. Upon trephining the right occipital bone, there was no pulsation in the dura, and there was considerable hernia cerebelli, without evidence of new growth or other lesion. The right ventricle was tapped through a second trephine-opening, and there was a profuse discharge of several ounces of clear ventricular fluid under pressure. The pulsation then returned.

After the operation the patient was so far improved that he lay quietly for some days, with some pain at the site of the incisions, but without general headache. There was a slight improvement in vision, so that he could now distinguish light with the right eye. The knee-jerk came back upon the right side, but never became so marked as upon the left side. There was some ataxia in the movement of the hands.

Seventeen days later his temperature rose to  $105^{\circ}$  F., and he vomited several times. He had a clonic spasm of the right arm at intervals.

The right ventricle was again tapped, and considerable fluid was withdrawn under pressure. Pulsation of the dura was brought about once more; but the boy never regained conscious-

ness and died the next morning, with the intracranial pressure unabated.

We may here express our obligations to Dr. W. N. Bullard, Dr. J. C. Munro, and the house-officers of the First Surgical Service for access to the clinical records.

*Clinical Summary.*—History of the head injuries, with perfect recovery: vertigo, attacks resembling Jacksonian epilepsy, projectile vomiting, headache, blindness, ataxia, loss of right knee-jerk, increase of left knee-jerk—the syndrome occupying seven months. Exploratory operation upon right posterior fossa cerebri and tapping of right ventricle. Some relief of symptoms. Tapping of ventricle a second time. Death eighteen days after initial operation. Duration of fatal illness, less than eight months.

Permission was given to open the head only. The examination, nineteen hours after death, was made by one of us (E. E. S.), during the service of Dr. F. B. Mallory, to whom we are indebted for aid in the report. Following is a description of findings:

Well developed, well nourished white boy. Rigidity of extremities and of arrectores pilorum. Lividity slight. Pupils dilated, left somewhat less than right. Operative incisions.

Pericranium adherent over nickel-sized area in the left frontal region. Inner table shows no sign of lesion at this point. Cranium of the usual thickness. No sign of fracture at the base.

Dura and cranium interadhere in parietal regions. There is firm interadhesion of tissues both within and without the cerebellar window. Sinuses filled with fluid blood.

Pia lifted from sulci in the vertex region by a clear fluid containing a few fibrinous flocculi. Pacchionian granulations extensively developed, as in old age. The pia at the base is quite regularly overgrown, especially about the olfactory nerves and the optic chiasm and around the vessels of the circle of Willis, which are normal. The overgrowth looks thicker than it actually is from the extreme edema. The overgrowth is of closest texture in the fossæ between medulla and cerebellum. The areolar tissue of the Sylvian fossæ is normal except for edema. The pia is everywhere edematous, but nowhere evidently thickened. The pial veins of the left side are more markedly injected than those of the right. The pia beneath the right hemisphere of the cerebellum is puffed out with perhaps fifty cubic centimeters of clear fluid. No evidence of tuberculosis.

Convulsions show marked flattening; both hemispheres are still under a degree of tension. Substance everywhere apparently normal, except where changes have followed the operations: there is very little injection in the track of the paracentesis; the right cerebellum is well dismantled, presenting a gray-red, thready,



grumous mass, in which there are no naked-eye evidences of neoplasm or other lesion not caused by operation.

The ventricles contain ten to fifteen cubic centimeters of fluid, on the left side clear, on the right clear and red from the leaking of blood. Vessels in ventricle floor are equally injected on the two sides. Choroid plexuses on both sides exhibit several opaque yellowish masses, one to two millimeters in diameter. The upper surface of the right choroid plexus is overgrown with connective tissues, so that the fornix cannot be stripped forward without ripping out bits of brain substance. The right anterior choroid artery shows a well-marked yellowish patch of arteriosclerosis three millimeters in diameter, four centimeters from the origin of the artery, two-thirds occlusive.

*Anatomical Summary.*—Chronic leptomeningitis with organization, especially well-marked at the base, about the superficial origins of nerves I. and II., and between medulla and hemispheres of cerebellum. Focal sclerosis of right anterior choroid artery. Chronic inflammatory changes with organization in right choroid plexus. Psammomata of both choroid plexuses. Epicerebral edema. Internal hydrocephalus.

The foregoing is a bit of evidence in the case against idiopathic internal hydrocephalus.

It is possible to hold that internal hydrocephalus is, like external hydrocephalus, never a genuine entity.<sup>1</sup> Acute internal hydrocephalus<sup>2</sup> usually proves to be one aspect in the picture of a meningitis, of cerebral edema from fracture of the skull, of commotio cerebri, of alcoholism, of renal or cardiorenal disease. Those cases of internal hydrocephalus, classed acute, that have been likened to angioneurotic edema of the subcutaneous tissues,<sup>3</sup> and the cases of so-called serous apoplexy<sup>4</sup> have the best title to the term entity. These cases are probably best reckoned as chronic with exacerbations,<sup>5 6</sup> or confessed as obscure.

It is less easy to dispose of chronic internal hydrocephalus as in all cases a partial phenomenon. Chronic internal hydrocephalus is systematically divided into the congenital and the acquired.<sup>7</sup> It would probably be better to distinguish the form running its course before union of sutures from a form, less well defined, occurring after sutural union.

The factors in the form of chronic internal hydrocephalus before union of sutures are uncertain, may involve a basal meningitis,<sup>8</sup> a dysostose cleidocrânienne,<sup>9</sup> or both, with an active secre-

tion of lymph through the ependyma. A developmental factor is admitted or quite narrowly excluded.

The form of chronic internal hydrocephalus occurring after closure of sutures is usually regarded as arising in an exudative process, as the effect of stasis, as angioneurotic, or as forming *e vacuo*.<sup>10</sup> Of these, the cases *e vacuo* (in general paresis, softening, and old age) may be set aside (in the group with external hydrocephalus, which they often accompany) as without doubt partial phenomena. The part assigned to an angioneurosis must be looked on as a more or less clever hypothesis, which so far explains nothing.

As possible entities there remain, among cases of chronic internal hydrocephalus setting in after closure of sutures, two accepted (or classified) forms: a form due to exudative processes and a transudative form with venous stasis. There is doubt whether venous stasis alone will occasion internal hydrocephalus. As to the inflammatory form, more and more cases are reported yearly which are putting the condition upon a satisfactory structural basis.<sup>11</sup>

Since the seventeen cases collected by Schulze,<sup>12</sup> the following cases of chronic internal hydrocephalus in adults, of interest on this point, have been reported:

1. Case of F. Taylor, 1897.—Boy of sixteen, with history of convulsions, bronchitis, and scarlet fever as a child. Symptoms referable to hydrocephalus extending two years, or possibly eighteen months, before death. Little characteristic in history beyond headache, vomiting and *tâche cérébrale*. Autopsy: Dilatation of all ventricles.<sup>13</sup>

2. Case of A. Heidenhain, 1899.—Male of twenty-three. Past history irrelevant. After exposure, headache, followed in three days by arching of neck, with head down and shoulders forward, lax extremities, heavy gait and slowness of speech. Later, in a course of several weeks, attacks of mania, with lowered temperature and pulse, lasting an hour. Autopsy: Not remarkable, excepting in a hydrocephalus involving all the ventricles without other lesion.<sup>14</sup>

3. Case of Burr and McCarthy, 1900.—Male of thirty-three. Fever, bradycardia, neck-stiffness, headache, stupor, hallucinations. Improvement after three weeks, with preservation of psychological changes. Recurrence of fever and meningitic symptoms

after one month. Death in a second recurrence. Papillæ normal. Knee-reflexes, at first absent, recurred just before death. Almost complete deafness. Autopsy: Hydrocephalus, ependymal proliferation of subependymal glia, perivascular infiltration beneath ependyma, old and fresh inflammation in choroid plexus. Similar changes without hydrocephalus were caused experimentally in cats by the injection into ventricles of various substances.<sup>15</sup>

4. Case of Spiller, 1902.—Male of fourteen and two-thirds years. Loss of power to walk with asymmetrical contractures and ultimate confinement to bed four years. Dilatation of right lateral ventricle from partial closure of foramen of Munro (inflammatory possibly tuberculous).<sup>16</sup>

5. Case of Spiller, 1902.—Male of nineteen. Headache with vomiting once or twice a week since childhood; six months' exophthalmos. Optic neuritis. Knee-reflexes increased. Death sudden. Autopsy: Cerebral ventricles dilated, fourth ventricle normal.<sup>17</sup>

6. Case of Grober, 1903.—Woman of twenty-four. History of malaise. No fever, slowing of pulse, or symptoms of previous meningitis. Case reported on account of focal asymmetrical symptoms, spasm in right facial region, hypesthesia in right supraorbital region, left facial paresis, left hypoglossus paresis, increase of right knee-reflex. Grober calls the anatomical finding *Hydrocephalus Acutus Internus*.<sup>18</sup>

7. Case of Gerhardt, 1903.—Male of twenty-two. Nine months before death, occipital pain, vomiting, vertigo, photophobia, with recovery after eight days. Seven months before death, recurrence. A second recurrence was apparently benefited by mercurial inunction (disappearance of choked disc). A third recurrence was characterized by apoplectiform attacks, with transient hemiplegia, once with double vision, without lasting focal symptoms. Autopsy: Hydrocephalus, ependymitis of fourth ventricle, obliteration of foramen of Majendie, fibrous thickening and cyst-formation of choroid plexus of fourth ventricle.<sup>19</sup>

Such are cases in adults which form the bulk of evidence that chronic internal hydrocephalus is an entity. The condition is scarcely entitled to the name, from mere obscurity of origin. The usual finding is chronic inflammation of plexuses, about foramina, or in meninges. There is a priori doubt whether chronic inflammatory changes will alone occasion hydrocephalus.<sup>20</sup> If they, however, will, then the supporter of hydrocephalus as entity must seek to establish chronic inflammation as



entity. The work of Joslin in tracing the remote effects of epidemic cerebrospinal meningitis in producing internal hydrocephalus is perhaps the best example of work on the line of resolving these phenomena.<sup>21</sup>

A possible interpretation of the present case is to suppose lowered pressure in the choroid area, consequent upon focal sclerosis in the anterior choroid artery, with effusion of fluid, as in infarction. That such sclerosis, not infrequent in old age, should not more often bring about internal hydrocephalus, is due to the absence of chronic changes at the lymph-outlet (foramen of Majendie or proximally).

A somewhat similar case is the often-quoted case of Newman (1882), of thrombosis of the vena magna Galeni.<sup>22</sup> Trendelenburg mentions, as a pathological curiosity, a case of tuberculosis effecting pressure on the vein of Galen, venous congestion, and ventricular effusion.<sup>23</sup> There is little doubt that tumor masses or cicatrices of various origin could be appropriately set to bring about ventricular effusion and to prevent its escape.

Further cases may throw light on the part possibly played by vascular lesions of the anterior choroid arteries in setting up internal hydrocephalus.

<sup>1</sup>Pilcz. "Behandlung des Hydrocephalus," *Centralbl., f. d. Grenzgebiete der Medizin und Chirurgie*, S. 681, 1899.

<sup>2</sup>Schulze. "Krankheiten der Hirnhäute und Hydrocephalie," *Nothnagel's Specielle Pathol. und Therapie*, IX. Band, III Theil, Wien, 1901.

<sup>3</sup>Quincke. "Meningitis serosa," *Volkmann's Vorträge*, 1893, Nr. 67; also *Zeitschr. f. Nervenheilk.*, IX, 1896, and *Berliner klin. Wochenschr.*, No. 39, 1891.

<sup>4</sup>Heidenhain. "Hydrocephalus acutus acquisitus (idiopathicus)," *Berliner klin. Wochenschr.*, Nr. 49, 1899.

<sup>5</sup>Schulze. *Loc. cit.*, S. 235.

<sup>6</sup>Prince. "Idiopathic Internal Hydrocephalus," p. 502, *JOURN. NERV. AND MENT. DIS.*, 1897. . .

<sup>7</sup>Heubner, in *Eulenburg's Realencyclopædie*, 1887.

<sup>8</sup>Lees and Barlow. "Simple Meningitis in Children," *Allbutt's System of Medicine*, Vol. VII, p. 492, 18.

<sup>9</sup>Marie et Santon. "Le Dysostose Cleidocrânienne Héritaire," *Bull, et Mem. Soc. med. d. Hop. de Paris*, S., XV, p. 436, 1898.

<sup>10</sup>Heubner. *Loc. cit.*

<sup>11</sup>Joslin. "Internal Hydrocephalus following Cerebrospinal Meningitis," *Am. Journ. Med. Sci.*, Oct., 1900.

<sup>12</sup>Schulze. *Loc. cit.*, S. 230-236.

<sup>13</sup>Taylor, F. "A Case of Chronic Internal Hydrocephalus Fatal at Sixteen," *Tr. Clin. Soc., London*, XXX, p. 175-9, 1896-7.

<sup>14</sup>Heidenhain. *Loc. cit.*

<sup>15</sup>Burr and McCarthy. "Acute Internal Hydrocephalus," *Journ. Exper. Med.*, October, 1900.

<sup>16</sup>Spiller. "Two Cases of Partial Internal Hydrocephalus from Closure of the Interventricular Passages," *Am. Journ. Med. Sci.*, p. 44, 1902.

<sup>17</sup>Spiller. *Supra*.

<sup>18</sup>Grober. "Herdsymptome bei Hydrocephalus acutus internus der Erwachsenen," *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, XI, 30-38, 1903.

<sup>19</sup>Gerhardt. "Drei Fälle von Hydrocephalus bei Erwachsenen," *Wanderversammlung*, Baden-Baden, 1903.

<sup>20</sup>Burr and McCarthy. *Loc. cit.*

<sup>21</sup>Joslin. *Loc. cit.*

<sup>22</sup>Newman. *Glasgow Med. Journ.*, Sept., 1882.

<sup>23</sup>Trendelenburg. "Hydrocephalus," *Internat. Clin.*, 8 S., III, p. 209,

# SENILE DEMENTIA; A CLINICAL STUDY OF TWO HUNDRED CASES WITH PARTICULAR REGARD TO TYPES OF THE DISEASE.<sup>1</sup>

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Senile dementia is that mental impairment which is a direct expression of cerebral deterioration from old age. It very rarely occurs before the sixth decade of life, and at least two-thirds of all patients over sixty years of age, admitted to asylums, are cases of senile dementia.

In the period (about three and a half years) which supplied the two hundred case histories (one hundred women and one hundred men) analyzed in this paper, there were admitted to the Insane Department of the Philadelphia Hospital, 269 patients over sixty years of age—69 of them not being senile dementers. (Table No. I.)

TABLE NO. I.

<i>69 Cases (though over 60 years of age) Not Senile Dementia.</i>	
Delirium .....	4
Confusion .....	8
Recurrent mania .....	4
Melancholia .....	8
Paranoia .....	11
Presenile delusional .....	9
Dementia præcox .....	1
Alcoholic dementia .....	6
Apoplectic dementia .....	6
Paresis .....	5
Tabes (with dementia) .....	1
Epileptic dementia .....	3
Imbecility .....	3

Many of the two hundred true senile dementers remained free from gross dementia for a long period after admission, and on

<sup>1</sup>Read before the Philadelphia Neurological Society, April 28, 1903.



the other hand many of the 69 excluded cases were considerably demented on admission or became so finally. However, some of the psychoses enumerated in Table I. are recoverable. All the "confusion" cases were discharged cured; in each case there had been a definite exciting cause—a railroad accident in one case, death of a friend under shocking circumstances in another, exhausting illness in a third, etc.

Delirium in old age (Table I.) arises quite readily, and generally it is similar in its etiology and in its clinical course to delirium at other periods of life. Even when it is terminal, to include it under the head of senile dementia seems hardly fair, since in our experience terminal delirium of old age may always be assigned to a definite organic cause—usually nephritis; frequently a surgical condition; in one instance it was a double parotitis, apparently mumps.

If then senile dementia is an entity, and can be separated clinically from various acute and chronic psychoses which may occur in old age, we are justified in declaring that the term "senile insanity" (Clouston) is useless and even confusing.

The essence of senile dementia is a quantitative change,—a mental loss; but the more obvious change is frequently qualitative—excitement, depression, delusion—so that the disease may appear in a guise simulating one of the pure insanities—mania, melancholia, paranoia, etc.

The mental loss is probably the source and spring of the entire disease, at any rate the mental enfeeblement which ultimately appears in every case, is peculiar and progressive, surviving the qualitative changes. Analysis of it, according to J. Rogues de Fursac,<sup>2</sup> reveals the following characters:

(a) Enfeeblement of attention, and slowness in the association of ideas.

(b) Inexact and incomplete perception of the external world.

(c) Several kinds of memory defect.

(d) Impoverishment of the stock of ideas.

(e) Impairment of judgment.

(f) Diminution of normal feeling (affectivity) and morbid irritability (tyrannical tendencies, etc.).

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<sup>2</sup>Manuel de Psychiatrie, 1903.

(g) Automatic character of the reactions (turbulence or apathy).

TABLE NO. 2.  
*Special Symptoms in the Several Types of Senile Dementia.*

	143 Cases		17 Cases		14 Cases		26 Cases	
	Simple Confusional		Excited (Maniacal)		Depressed (Melancholic)		Paranoid	
	Men	Women	Men	Women	Men	Women	Men	Women
Wandering streets	34	23=40%	1	3=24%	1	1=14%	0	3=12%
Hallucinations prominent,	23	10=23%	0	2=12%	3	6=64%	11	11=85%
Vertigo,	21	6=19%	1	0=6%	0	2=14%	6	1=27%
Violence,	15	12=19%	7	3=59%	1	1=14%	7	7=54%
Headache,	11	0=8%	1	0=6%	0	0=0%	4	1=19%
Night-prowling,	4	7=8%	0	1=6%	1	3=28%	0	2=8%
Suicidal attempts,	5	4=6%	1	1=12%	1	1=14%	4	0=16%
Apoplectiform strokes	3	5=6%	2	1=18%	1	3=28%	2	1=12%
Exaltation,	8	3=8%	1	0=6%	1	0=7%	7	4=42%
Epileptiform attacks,	2	2=3%	0	1=6%	0	1=7%	0	0=0%
Violence at night,	4	2=4%	0	1=6%	1	0=7%	4	0=19%
Suspicion of poisoning,	2	1=2%	0	3=18%	0	1=7%	5	4=35%
Suspicion of conspiracy,	1	2=2%	1	0=6%	1	0=7%	6	6=46%
Persecutory ideas, other than poisoning, conspiracy, etc.	6	8=10%	2	2=24%	1	3=28%	6	4=38%
Setting fire to things,	1	0=2-3%	1	1=12%	0	0=0%	0	0=0%
Delusion of marital infidelity,	0	0=0%	1	0=6%	0	0=0%	3	0=12%
Echolalia,	1	2=2%	0	0=0%	0	0=0%	0	0=0%
Chorea,	0	0=0%	0	0=0%	0	0=0%	0	1=4%
Sum of Symptoms,	228		38		34		111	
Numbers of cases,	143		17		14		26	
Symptoms to each case,	1 3-5		2 1/4		2 1/2		4 1/4	

As the disease advances, mental loss becomes more palpable, and some of the "special symptoms" tabulated in Table II. make their appearance. In its perfectly simple or "pure" form, senile dementia would exhibit none of these special symptoms—the mental power would simply fade away imperceptibly—but such cases are rare, particularly in asylums.

The commonest departure from such theoretical simplicity of type consists in the added element of confusion. In a few cases

this is the dominant feature and may seem to call for the erection of "senile confusion" into a separate type of dementia senilis (Kraepelin, Dercum, *et al.*).

This type may strongly resemble acute confusion (mentioned in Table I.), but the graver condition is distinguished by the signs of the accompanying dementia. A few cases of this type resemble paresis.

Confusion of some degree is present in all types of senile dementia; it appears episodically in many cases, being one cause of the familiar street-wandering of senile demented (Table No. II.).

Probably a simple senile dementia, when it advances rapidly, becomes senile confusion. At any rate so great difficulty was found, both by my colleague, Dr. Elizabeth Lovelace, who classified the women, and by myself, with the men, in satisfactorily separating the simple cases from the confusional in the present series, that it was thought best to abandon the attempt; and so in all the tables they are to be found combined under the name "simple-confusional type" of senile dementia. This is not an arbitrarily novel plan, if we reflect that many writers (Clouston *et al.*) include senile confusion in the simple type, while others (Kraepelin), almost ignoring the simple type, evidently include many "simple" cases under senile confusion. The composite "simple-confusional" has the value of a compromise; but in addition it signifies the dual aspect of this group, which contains more than two-thirds of all cases of senile dementia (143 of the 200).

That this simple-confusional type is really *simple* in its manifestations, is seen in Table No. II., where its special symptoms summed up at the foot of the first column average only 1 3-5 to each case. In this respect the excited type (Table No. II., second column) ranks next, the depressed third, and the delusional (paranoid) fourth; that is, farthest from the simple type—the special symptoms in column four of the table averaging  $4\frac{1}{4}$  to each case.

I have introduced the term "Paranoid" in conformity with the nomenclature of dementia præcox, the paranoid form (Kraepelin) of which bears somewhat the relation to the group of adolescent dementias that this paranoia-like form bears to senile dementia.

To my own surprise I find that the graded series, obtained in Table II. is evidently a natural one; for the records of knee-



TABLE No. 3.  
*Knee-jerks in the Several Types.*

	Simple- Confusional	Excited [Maniacal]	Depressed [Melancho- lic]	Paranoid
Normal	17%	17%	18%	25%
Minus	22%	25%	18%	38%
<i>Normal or Minus</i>	39%	42%	36%	63%
Absent	29%	25%	10%	20%
Plus	24%	25%	27%	17%
Unequal	8%	8%	27%	0%
<i>Absent, Plus or Unequal</i>	61%	58%	64%	37%

jerks (Table III.) range the four types of the disease in this same series, while the family histories of insanity, expressed in percentage (Table IV.), support it strictly.

These facts, if we are permitted to express them in the form of laws, will be: First (from Table III.), Physical deterioration in senile dementia is greatest in the simple-confusional type, and is progressively less in the excited, depressed, and paranoid types;

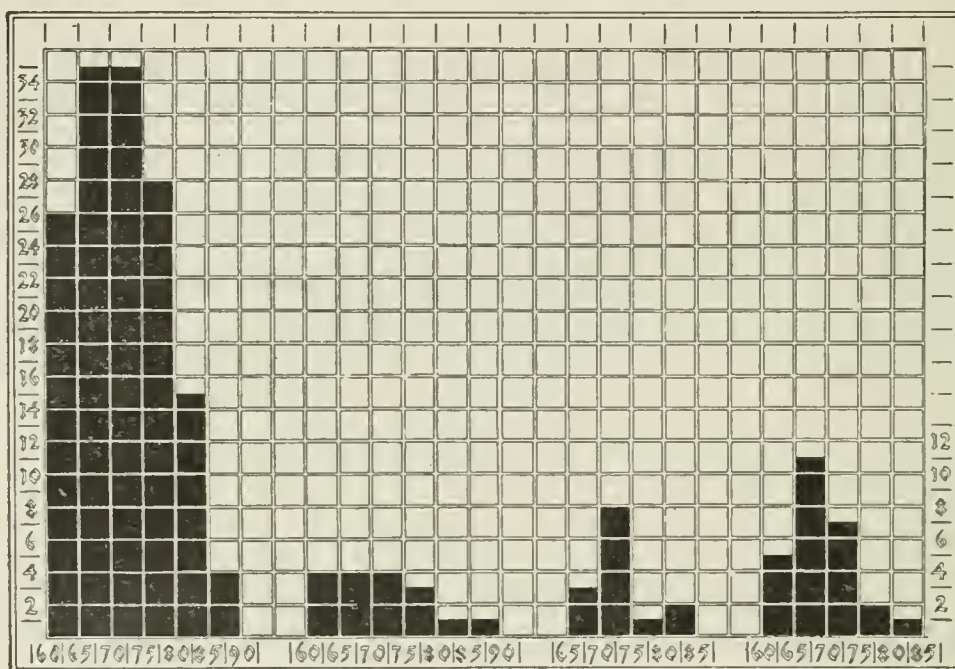
TABLE No. 4.  
*Instances of Insanity in Families of Senile Dements.*

Cases with Acceptable History	46	9	7	9	
	Simple Confu- sional	Excited [Mani- acal]	De- pressed [Melan- cholic]	Para- noid	
Father insane	2	1	0	0	11 Ascendants
Mother "	6	1	0	1	
Brother "	1	1	0	3	
Sister "	4	0	1	1	11 Collaterals.
Son "	5	0	2	1	
Daughter "	2	1	1	0	12 Descendants.
	43%	44%	57%	67%	

Second (from Table IV.), Hereditary degeneration is least in the simple-confusional type, and is progressively greater for the others in the same order—excited, depressed, paranoid. We may perhaps account for these facts by supposing that senile cerebral changes, by impairing the association systems of the cortex, will cause simple mental loss in a man of normal nervous make-up, only after diffuse degenerations have become established, revealing themselves in the cord by abnormal knee-jerks, etc., whereas in neuropathic individuals the cortical changes, at an earlier stage,

light up the inherited tendencies to pure insanity. If this be the correct explanation it is strange that we do not find the simple-confusional cases oldest in years, and the paranoid youngest. Clouston<sup>3</sup> says that in his experience the simple cases are in truth older, but no such generalization can be made from our statistics. (See charts.)

As regards excitement and depression in old age, it is to be remembered that irritability and violence do not constitute true



Simple Confu-  
sional.  
143 cases.

Excited (Mani-  
acal).  
17 cases.

Depressed  
(Melancho-  
lic).  
14 cases.

Paranoid.  
26 cases.

Charts to show the ages of patients belonging to the several types of senile dementia. The figures at the bottom represent the ages by hemi-decades; those at the side, the numbers of cases.

mania, nor fear and anxiety, melancholia. In our simple-confusional patients such emotional manifestations were not infrequent, though they were always transient.

The seventeen cases which we have grouped under the "excited" type in Table II. were those in which there was something

<sup>3</sup>Mental Diseases, p. 637.

of the flight of ideas and hilarious expansiveness of mania; yet we believe that true mania probably never arises in old age. Cases diagnosed "senile mania" are, ordinarily, delirium or confusion with excitement.

On the other hand, we believe with Kraepelin, C. K. Mills and others, that many cases of so-called senile melancholia—those in short that exhibit a conscious, reasoning depression—are true melancholiacs, and recoverable (eight cases in Table I.). Our fourteen cases of the true depressed type (Table II.) of senile dementia, showed the signs of the underlying peculiar dementia from their beginning.

Of all phases of this subject that of fixed *delusion* in the aged is the most perplexing.

If we eliminate (as in Table I.) paranoiacs, presenile delusionals, alcoholic dementers (rarely a case of dementia præcox!), etc., from our category of senile dementia, we still have to dispose of a number of cases (26 in Table II.) in which delusions, more or less systematized, have been the troublesome feature, making the patients disagreeable, unjust or even dangerous, to their families; though when met with in the wards of the asylum they are "uninteresting" senile dementers.

Such a case is Charles W. J., a sea-captain, 84 years old, who was admitted to the Philadelphia Hospital in 1902. This patient's brother committed suicide while insane; his sister was "melancholy" in an asylum, and his son died insane under our care. In 1901 Charles was said to be "growing childish" and had physical complaints—his "legs were going to break," he said; then voices began to urge him to commit suicide; grotesque figures and faces would appear on the walls, and he believed that his life was in great jeopardy. On admission he told us, confidentially, of a conspiracy against him, making his "life not worth that" (a snap of the finger) if he told it; though before a class of 150 students, which he mistook for the State Senate, he dilated upon the machinations of the "U. G. I." and of the "Traction Company" which "is putting electricity on" him.

This patient has a mind to make a vengeful visit to the offices of these "secret societies," as he calls the corporations mentioned, yet he has very little idea of where he is at any time, and in all respects, except for his delusions, is a garrulous, foolish senile.



Another example is Catharine K., a woman 65 years old, of whose family we know only that her father died of apoplexy. About a year before her admission in 1899, Catherine was observed to be failing in mind and body, and to be growing over-religious. She wandered from church to church, was several times lost on the streets, and in this manner finally reached the hospital through the police.

We learned that for several months the old lady had refused to eat any food prepared by her daughter, with whom she lived, and had tried to prevent the daughter's children from eating it, for fear of poison. She would stop strangers on the street, or policemen, and complain that her daughter and daughter's husband were going to kill the children "to get life-insurance money." She tried to have the children sleep in her bed and, being prevented, she one day rented a house and took the children to it, where after two days they were found with their demented grandmother, who had not attempted to even feed them; her sole thought having been to save them from their "murderous" parents.

In the hospital Catherine has recognized numerous patients, nurses and doctors as her nieces and nephews; she promises them houses and money—if she had wealth her own kindred surely would be disinherited—and in all her works and ways is a senile dement.

These are very marked examples of the cases that compose the paranoid type of senile dementia—in legal medicine one of the most important forms of insanity. Its various characters may be gathered from Table II., fourth column. We have called especial attention to it only because it is so little dwelt upon by the standard authors.

## A CASE OF ALEXIA.<sup>1</sup>

BY PHILIP ZENNER, A.M., M.D.,

OF CINCINNATI.

The following case is reported because it presents an unusually pure alexia. There is inability to read with scarcely any other aphasic manifestation. The patient writes freely, in fact carries on a considerable correspondence, but he is unable to read his own letters. The only distinct paralytic manifestation is hemianopsia, which is, probably, always found with alexia.

R. W., age 63, contractor, Omaha. He has led rather a fast life. Forty years ago he had a venereal sore, but knows nothing of any constitutional manifestations. Eighteen years ago he had acute articular rheumatism. For a number of years he has had some dyspnea on exertion, and on several occasions was confined to the bed or house with what he terms heart attacks, of which dyspnea appears to have been the most pronounced symptom.

The alexia came on in April, 1902, during one of these spells of illness which kept him in the hospital for some days. He attributes it to a somewhat exciting altercation with a man about some matter of business. But he merely knows that when on a subsequent occasion he tried to read he found himself unable to do so. There may have been a period of a day or two both before and after this altercation wherein he happened not to have read anything, so that possibly it was neither the cause nor the time of the setting-in of the alexia. It is not improbable that the attack came on in sleep, as is often true of acute softening. The only other speech disturbance which he has observed is the occasional difficulty of finding a word, or using a wrong word. Such speech disturbances have been noticed only since he could not read. He thinks there has been some improvement in both his reading and speech.

He came to me Sept. 13, 1902. The patient was a large, fine-looking man, with florid complexion, and the appearance of health. His appetite, digestion, and bowels were in good condition. In addition to the aphasic manifestations he complained of occasional dyspnea, of palpitation or irregular heart action, and pain in the

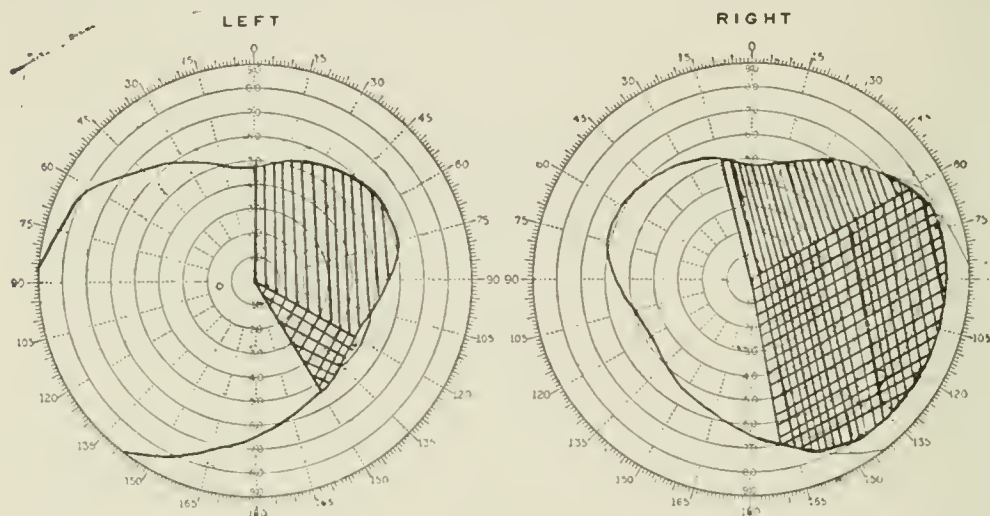
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<sup>1</sup>Read at the meeting of the American Neurological Association, May 12, 13 and 14, 1903.

heart, and sometimes disturbed sleep on account of dyspnea. The pulse was very irregular, between 70 and 80, and not specially hard. The heart was enlarged, the sounds somewhat muffled. Occasionally there appeared to be a bruit at the apex. It was questionable whether there was only degeneration of the heart walls, or whether there was also valvular disease.

The urine had a specific gravity of 1020, and contained a small amount of albumin, no sugar. Microscopic examination was negative. He passed three pints in twenty-four hours.

There is no motor paralysis, nor ataxia. The cutaneous sensation is everywhere normal, as are also hearing, taste and smell. The pupils, optic disks and knee-jerks are normal. Achilles-tendon reflex can not be elicited on either side. There is no Babinski,



Crossed lines indicate relative scotoma; uncrossed lines indicate absolute scotoma. O. D. Fundus oculi normal plus 1.5 equals plus 1 cyl. 180°, V. equals 6-6. O. S. Fundus oculi normal plus 3 equals plus 1.5 cyl. 105° V. equals 6-6.

no Romberg. He has a right hemianopsia in each eye. The blind area reaches to the center of vision, though the scotoma does not quite cover the entire half of the field. In each eye, too, there is an area of absolute and relative blindness, the former being in the upper, the latter in the lower quadrant. The area of absolute blindness is larger in the left than in the right eye. Central vision for each eye is normal.

The patient's mind is somewhat weakened. He often repeats himself in conversation, forgets occurrences of the day, vacillates in his actions, and sometimes makes the impression of being childish. But, in general, he impresses people favorably and manages his business and his own affairs.

He fully understands everything said to him, and expresses



himself clearly and fluently. Occasionally it has been observed that he used the wrong word, as New York for Chicago. When tested in naming objects at times he succeeds very well, again he has difficulty. The following are the notes of my first examination. He was shown a watch, pencil, knife, which he named at once. Then keys. He said: "Bunch of pens. Bunch of weights. Can't get that word now, but know what it is all the time. . . . . keys, bunch of keys." Next he was shown different pieces of money, which he named at once.

On most other occasions he succeeded much better in naming objects, often not failing at all. Sometimes, as is so common in aphasics, during the examination he would repeat the name of an object just named before, and only after some effort would the correct word come to him. When he does not succeed in finding the name of an object, handling the latter does not help him to find its name. He fails in naming persons about as often as in naming objects.

He is altogether unable to read. But he can tell single letters, though not always with ease, and often incorrectly. He names some letters better than others. A is always named at once. S usually gives him trouble. In some instances it appears as if he merely could not think of the name of the letter, just as he, at times, can not think of the name of an object. At other times there is evidently uncertainty as to what the letter really is.

I will give a few instances in which the letter gave him considerable difficulty.

He was shown the letter H. Said first G, then A, but thought he was mistaken. "Is it C?" "No." "Is it H?" "No——I think it is." In instances like this there often seems in the end to be some uncertainty in his mind, for if I imply a doubt (when he answers correctly) as to his answer he becomes doubtful too. At other times he feels quite certain of the answer. Often he tries to help himself by saying the alphabet, A, B, C, etc.; at other times by tracing the desired letter with his finger, which acts sometimes as a help, at other times not. When asked to find a given letter B, R, F, etc., he rarely fails to do so, though he may have to search a while for it. The time required depends on the size and distinctness of the print. He recognizes capital letters much better than small letters. As to reading, he can do so as far as he is able to spell the words. Whenever he succeeds in spelling the word correctly he recognizes it at once. In fact, after reading a word or two he may be able to read the phrase, getting it not through reading, but by inference. Of course, he often makes mistakes in such ventures. A word of two letters, "of," for instance, is often recognized as easily as one letter.

I will give a few instances of his attempt to read. He was

asked to read "ROYAL BAKING POWDER." He said: "R, O, Y, A," then stopped. "Is it S?" "No." "Y?" "No." "L?" "Yes." Began again: "R, O, Y, A, L, royal"; then added, with a laugh, "baking powder." Asked to spell the latter two words he did so easily, but acknowledged that it was his knowledge of spelling rather than his ability to read that enable him to do so. One more instance:

Was asked to read, "This is a fac-simile." Read: "T, h, i, s, this, is a f ac—there is that letter I always get stuck on—pshaw." After a pause, in the meantime lamenting his condition, he said "s, but why did I forget it?" After another pause, began, "f a c c, is that c?" Then after many efforts to name the letter, and some bitter complaints, began saying the alphabet, "q r s t u v w x y z, q r s"; was seemingly uncertain, then said abruptly, "Why can't I say S?" and now began complaining bitterly of the state of his brain.

His reading numbers is much like reading words. When there is more than one figure he reads one figure at a time, and when he has read them all tells what the number is. He makes mistakes in the figures, too, though less frequently than with letters. He was given this sum in addition.

$$\begin{array}{r} 895 \\ 473 \\ 245 \\ \hline \end{array}$$

As he worked the problem he spoke aloud thus: "Five and three are eight and five are thirteen; put down three and carry one; one and four are five and six are eleven and nine are twenty; put down ought and carry two. Two and two are four and four are eight, and six are fourteen."

It will be observed that his addition as he read the figures was quiet correct, but he made a mistake in reading 7 and 8, in each instance saying 6. But when his attention was called to these figures he immediately recognized them correctly.

As before stated he writes freely and carries on a considerable correspondence. In these specimens of his writing it will be observed that the most noteworthy feature is its tendency to run beyond the right margin of the sheet. This is, of course, due to his right hemianopsia. The handwriting and spelling both leave much to be desired, but he states that they are as he is wont to write, a statement which has much to corroborate it in the internal evidence of his writings. In his letters he often repeats himself, a further mark of a degree of mental weakness.

After a few months the patient returned to his home in the far West. During the time he was under my observation there was no material change in his condition.

As to the seat of the lesion the hemianopsia points clearly to the occipital lobe. The relation of the angular gyrus, now gen-

Cincinnati Oct 19<sup>th</sup> 1902

Dr Philip Jenner  
Cincinnati

Dear Sir

At your request  
I send you a few lines  
to show you the Condition  
of my Brain at this  
time - Although I is by  
no means Perfect I hope  
I am improving - But  
I notice that I do not  
keep the lines - as close  
as I ought to and am  
in the habit of writing  
to close to the outer edge  
of the paper - frequently mak-  
-ing the mistake of not allow-  
myself room to finish word

erally accepted as the visual speech center, to the lesion can be less definitely outlined. Its destruction would, doubtless, cause more extensive aphasic manifestations than we have in this case. Very likely the lesion encroaches upon this area and severs its relations with the lower visual centers.



THE REFLEXES IN LONG DISTANCE RUNNERS. A STUDY  
OF THE INFLUENCE OF FATIGUE UPON CERTAIN  
REFLEXES.<sup>1</sup>

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As is well known, one of the more interesting events of the revival of the Olympic games at Athens in 1896 was the foot race from Marathon to Athens, a distance of forty kilometres, in commemoration of the exploit of Eucles, the soldier who is said to have run in full armor from the battle-field to Athens with the news of victory, and dropped dead in the market-place as he told his story. Some of the American contestants in that event established a "Marathon run" in Boston under the auspices of the Boston Athletic Association, which has for seven years been one of the features of Patriot's Day, April 19th, and has become an athletic event of considerable importance.

During five of these seven years the participants in the runs have kindly lent themselves to the investigations of a large number of physicians, and the results of these investigations have been published by Drs. Williams and Arnold<sup>2</sup> and Drs. Blake and Larrabee.<sup>3</sup> These investigations have been directed toward the weight, pulse, temperature, pulse tracing, the blood, the heart and the kidneys.

The course is twenty-four miles (forty kilometres), from Ashland to Boston, the first two-thirds of the way over ordinary country roads, the last third over the hard macadamized roads of the

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<sup>1</sup>Read at the meeting of the American Neurological Association, May 12, 13 and 14, 1903.

<sup>2</sup>Philadelphia Med. Journal, June 3, 1899.

<sup>3</sup>Boston Med. and Surg. Journal, Feb. 19, 1903.

Boston park system. There are several rather trying hills. The men must proceed on foot over the entire distance, without any assistance, but they may eat or drink what they please during the race. Each contestant is usually accompanied by several men on bicycles. As soon as the men arrive at the goal—the club-house of the Athletic Association—they are taken in the elevator to the examining room, where the second series of examinations is made. The first examinations are made at the hotel at Ashland an hour or two before the start. The men are young, of various nationalities and callings, and are classed as “amateurs.” The time of the winner has varied from two and a half to three hours.

In addition to the physical strain attendant upon this run of twenty-four miles there must be considerable mental excitement. For two hours before the race the little hotel at Ashland is crowded with the contestants, their trainers and attendants, and the corps of examining physicians, a dozen or twenty men crowded into each little room. The village street outside is full of automobiles, bicycles, and interested spectators. Large and enthusiastic crowds assemble in all the towns through which they pass. The newspaper estimates of the number of spectators vary from one to two hundred thousand. For the last mile or two, in the city itself, the streets are packed with thousands of cheering spectators, through which the mounted police, the automobiles and the bicycle guards of the runners can with difficulty make their way.

In the contest this year an attempt was made to study the conditions of certain reflexes in these contestants before and after the run. For this purpose the following reflexes were selected: Plantar reflex, knee-jerk, ankle-reflex, front-tap contraction, ankle-clonus and patellar clonus. The reflexes were examined in both legs in each contestant, the legs being bare.

Forty-eight men were examined at Ashland before the run. Of these forty-one presented themselves for re-examination at the Athletic Club after the run, but four or five of them had not covered the whole course. The winner, unfortunately, escaped our examination at Ashland, but he kindly presented himself for examination five days later.

It is self evident that in examining so large a number of men

in a limited time the use of elaborate apparatus is impossible. Nor is it safe to rely on a simple estimate of "increased" or "diminished" for purposes of comparison. In our investigations, therefore, we adopted a scale, modified from one proposed some years ago by Kidd. Before describing this, however, a word of explanation is necessary in regard to one term. In the ordinary test for the patellar clonus, when the patella is drawn downward by the finger and the finger struck with a percussion hammer, or better, with Taylor's reflex hammer, the quadriceps extensor will often give one contraction, even when there is no clonus. This we have called the "patellar twitch." It is often present in cases where the knee-jerk is fairly lively, yet where there is no front tap contraction. On the other hand, front tap contraction is rarely, if ever, present when there is no patellar twitch. The scale we adopted, then, was as follows:

1. Knee-jerk absent = Kj — 3 or Kj 0.
2. Knee-jerk obtained only by re-enforcement = Kj — 2.
3. Knee-jerk obtained without re-enforcement, but very slight, = Kj — 1.
4. Fair knee-jerk = Kj normal.
5. Knee-jerk with patellar twitch = Kj + 1.
6. Knee-jerk with patellar twitch and front tap contraction = Kj + 2.
7. Knee-jerk with patellar and ankle clonus = Kj + 3.

TABLE I.  
Condition of the knee-jerk before the run.

Kj — 2	1
Kj — N	4
Kj + 1	26
Kj + 2	18

The conditions of the reflexes in these forty-nine men before the run were of some interest. As might fairly be predicted, the knee-jerk and ankle-reflexes were present in every case, and only in one instance was re-enforcement necessary to obtain the knee-jerk. It was a somewhat curious fact, however, that the degree of ankle-reflex remained rather constant. It seldom showed the variations of the knee-jerk. In no case was there ankle or patellar clonus, although one man had a very slight spurious clonus. In the main the knee-jerks were rather exaggerated; twenty-six had



also a patellar twitch, and eighteen a patellar twitch and front-tap contraction.

Whether this exaggeration is to be attributed to excitement, or is characteristic of runners, as Dr. Hammond<sup>4</sup> has suggested, we can not tell. In no instance was there any inequality of the knee-jerk or ankle-reflex, but in three cases the patellar twitch seemed unilateral and in four the front-tap contraction.

In five cases no plantar reflex was obtained. The method of testing, however, was designedly inadequate. A not very sharp stick was used and no attempt was made to procure the reflex by a sharp steel point, lest the runner's foot might accidentally be scratched and his running power thus diminished. Experience has taught us that the sharp steel point is at times necessary to elicit this reflex in healthy subjects, and we regard the plantar reflex as extremely constant in health. In no case, we may add, was there a Babinski reflex, and in no case was there inequality of the plantar reflexes. No distinction was made between flexion of the toes and the fascia lata reflex, but the former was usually present and both often coexisted.

The influence of fatigue upon the reflexes has been somewhat disputed. Lombard<sup>5</sup> found that moderate fatigue, such as going over the stairs for fifteen minutes, caused a decided diminution in the knee-jerk, and he explained the discrepancy between his conclusions and Sternberg's<sup>6</sup> by the fact that Sternberg's observations were made on cases of extreme fatigue. Other writers have in the main agreed with Sternberg's conclusions that the reflexes are exaggerated by fatigue. Subsequently, however, Sternberg<sup>7</sup> has asserted that while moderate fatigue, as he showed by experiments, increases the reflexes, excessive fatigue diminishes or abolishes them. We have failed to find the experimental evidence of this statement, which has been copied by various writers subsequently (Sherrington,<sup>8</sup> Oppenheim<sup>9</sup>).

The noteworthy result of our investigation was the discovery

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<sup>4</sup>Lancet, March 30, 1895.

<sup>5</sup>American Journal of Psychology, April, 1887.

<sup>6</sup>Centralblatt für Psychologie, i, 81; May 14, 1887.

<sup>7</sup>"Die Schenenreflexe," p. 87.

<sup>8</sup>Schäfer, "Text-book of Physiology," ii, 872.

<sup>9</sup>"Lehrbuch der Nervenkrankheiten," p. 14, 3d edition.

that the run, in many cases, namely, twenty-six in number, caused some diminution of the knee-jerk. In four cases only was there an increase, that is, in four cases a front-tap contraction was obtained after the run, although not before. In no case, however, was there a clonus. The diminution was often decided. In three cases, for example, the knee-jerk was absolutely lost, although in all three it had been attended with a patellar twitch before. In one of these cases, however, the man was too exhausted to sit

TABLE 2.  
CONDITION OF THE KNEE-JERK AFTER THE RUN.

		CONDITION OF KNEE-JERK BEFORE RUN	ANKLE REFLEX
Kj 0	3	Kj +1, 3	0, 1; — 1
Kj — 2	6	Kj — 2, 1; Kj + 1, 4; Kj + 2, 1	0, 1
Kj — 1	5	Kj + 1, 5	0, 2
Kj N	4	Kj + 1, 2; Kj + 2, 2	0, 1
Kj + 1,	7	Kj + 1, 3; Kj + 2, 4	
Kj + 2,	9	Kj N, 1; Kj + 1, 3; Kj + 2, 5	
Kj unequal	4	Kj N, 1; Kj + 1, 3	
[N, 3; + 1, 1,]			
Kj 0 on one side,		Kj N, 1; Kj + 1, 2	
Kj — 2 on other 3			

up, and the knee-jerk had to be taken while lying down and re-enforcing—an inadequate method. In three other cases the knee-jerk was lost on one side and obtainable only by re-enforcement on the other. In five other cases the knee-jerk could be obtained

TABLE 3.  
CONDITION OF ANKLE REFLEX AFTER RUN.

ANKLE REFLEX		CONDITION OF KNEE-JERK.
Absent	5	Kj 0, 1; Kj — 2, 1; Kj — 1, 1; Kj N, 1; Kj absent on one side, only by reënforcement on other, 1
Diminished	2	Kj 0, 1; Kj absent on one side, only by reënforcement on other, 1
Absent on one side, diminished other	2	Kj 0 one side, only by reënforcement on other, 1; Kj unequal, normal in degree, 1

only on re-enforcement, and in five more it was diminished. In four cases the knee-jerks became unequal on the two sides.

The ankle-reflexes showed also a diminution. In five cases they were lost, in two they were lost on one side, and in two they were diminished. The loss of ankle-reflex, however, did not always coincide with loss of knee-jerk, or *vice versa*.

As has been indicated above, the minor reflexes, the patellar twitch and front-tap contraction may fairly be cited as indications of the diminution of reflex energy. The patellar twitch, present in forty-four cases before the run, was present in only seventeen after, and the front-tap contraction, present in eighteen before, was present in but nine after.

TABLE 4.  
MINOR REFLEXES BEFORE AND AFTER RUN.

	BEFORE	AFTER
Patellar twitch	44 in 49	17 in 41
Front-tap contraction	18 in 49	9 in 41

The plantar reflex, however, showed a different condition. The quantitative changes here must be merely estimates, for no elaborate methods of measurement were feasible. It seemed to us, however, that in a very considerable proportion of the cases there was an increase. Such increase was noted in twenty cases and a diminution in five, while in twelve no change was noted. The correctness of this opinion seems further justified by the results observed in the cases where no reflex was obtained before the run. Four of these five men were examined after the run, and in every case a reflex was obtained. In no case was there a Babinski reflex.

The explanation of the diminution of the tendon reflexes is perfectly simple—the increased sensitiveness of the soles to irritation following the pounding over the hard roads. In many cases there were large blisters on the feet, and it is fair to suppose that the skin elsewhere was unduly sensitive.

The explanation of the exaggeration of the plantar reflex is not so easy. There is probably, as Dr. Larrabee has shown, an acute toxemic condition induced by the run, but acute toxemia as a rule is not accompanied by diminution of the reflexes. The exhaustion, as a rule, was not so great as might have been expected, and the few men who were so much exhausted as to demand special attention, did not show greater changes than the others. Nevertheless, the theory of exhaustion of the reflex centers in the cord seems the most plausible explanation.



## Society Proceedings

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NEW YORK NEUROLOGICAL SOCIETY.

November 3, 1903.

The President, Dr. Pearce Bailey, in the Chair.

*A Case of Muscular Dystrophy.*—Dr. J. Ramsay Hunt presented a woman, forty-one years of age, afflicted with muscular dystrophy. The first symptoms began about six months ago with a certain heaviness in the legs, and at the end of a year she experienced difficulty in going up and down stairs. She came under observation about two years and a half ago, at which time there was paralysis of the adductor groups of muscles on both sides, and also of the ilio-psoas groups. The arm muscles were normal except that the elevators were slightly weak. The family history was negative. She had borne four healthy children. There were no evidences of involvement of the pyramidal tract. The electrical reactions were normal. The special interest of the case centered in the localization of the affection in the adductor and ilio-psoas groups of muscles.

Dr. Joseph Fraenkel referred to a case that he had seen, in which the condition had apparently developed rather suddenly, following a pregnancy. This peculiar localization in the adductor and ilio-psoas muscles made the diagnosis at first rather difficult. He had found, in the literature, mention of a case which was looked upon as a progressive muscular atrophy, and not a dystrophy, but the other features did not support that view.

*Studies on the Periosteal Perception of Vibrations.*—Dr. Edwin G. Zabriskie read a paper with this title. He said that the best method of testing this sense was by means of a tuning fork set in vibration, and then placed firmly over the bony prominences where there was the least amount of tissue between the bone and the skin. The fork selected for this purpose was that devised by Dr. Dench, giving 64 vibrations per second, because of the power of such a fork to send the vibrations through a considerable layer of tissue. The results were controlled by means of a fork having 512 vibrations. In making the observations the intelligence of the patient must be well considered; even intelligent people were apt to confuse the pressure of the fork with the vibrations. It was well to first place the fork where the vibrations would be plainly felt, as over the cranium, thus impressing upon the patient the kind of sensation to be noted. The lesions studied were divided into three groups, viz.: (1) Those of central origin; (2) those of the nerves themselves, and (3) those of the bones and joints. The first group contained by far the greatest number of cases studied, and the most interesting ones were tabes dorsalis, cerebrospinal syphilis, the lesions producing Brown-Séquard's symptoms and hemiplegia. When there were profound disturbances of the integument there might be slight or no change in the periosteal perception. Most commonly there was a wider distribution, or a more profound disturbance of the periosteal perception than that of the integument. Sometimes there were only certain areas of one bone over which the periosteal perception was lost. There were only three cases with the Brown-Séquard symptoms that were studied, and,

hence, no definite conclusions could be drawn. As yet he had been unable to establish a definite relation between the periosteal perception of vibrations and the position sense. Some cases of sciatica presented an interesting condition. In several of these there was no loss of periosteal perception of vibrations or of the position sense, although there were definite disturbances of cutaneous sensation. In about one-half of the cases there was a diminution of the periosteal perception on the affected side. The cases of alcoholic neuritis, with slight involvement of the cutaneous sensibility, showed no change in the periosteal perception. In a case of beginning acromegaly there was no disturbance of the position sense. In the joint cases when there was evidence of definite absorption of the bone, there was loss of vibration confined to the affected bone area. In a case of chronic arthritis of the hip joint the perception of periosteal vibrations on the affected side of the pelvis were decidedly diminished. In the cases of arthritis deformans only one showed any disturbance of the position sense, and that case also exhibited marked cutaneous disturbances over the left arm and right leg, and over these areas the vibrations were less plainly perceived. In a case of cerebellar tumor the position sense was profoundly disturbed. There were no cutaneous disturbances or changes in the periosteal perception of vibrations. The speaker said that he had examined seven or eight well defined tubercular joint lesions, yet none of these showed any change in the periosteal perception of vibrations. He had himself been unable as yet to come to any conclusions.

*Mental Defect and Shock.*—Dr. Pearce Bailey reported the following case: The patient was a victim of the tunnel disaster in New York City on January 8, 1902. Prior to the accident he had been an active man without hereditary taint, and with no history of syphilis or alcoholism. He was fifty-eight years of age, and had built up a large and lucrative business. The lower part of both his legs was crushed, and after about an hour he was taken away in an ambulance. At this time he lost consciousness, and did not regain it until after he had reached the hospital. The patient gave an accurate and vivid account of the accident, which showed very well the terrible mental strain he had undergone. At the hospital it was found that the only injuries he had received were compound fracture of both bones of both legs. The next afternoon he became stuporous. He had been first seen by the speaker on January 13 while in a private hospital. There was no paralysis of any cranial nerves, or of the hands. Sometimes he would make inarticulate answers to questions; sometimes he would not answer at all. A few days later he appreciated the fact that his mind was cloudy. He improved slowly. On February 8, however, he became delirious from the onset of erysipelas. When seen again, on June 13, he had left the hospital. He was still sleeping but little; his appetite was good, but he was entirely unable to endure physical or mental effort. Many simple words he did not understand, and many others he could not read correctly. His writing was very tremulous and imperfect. He made mistakes in counting and in simple arithmetical problems. His memory of the time preceding the accident was perfect, and also of that immediately after that event, but from shortly after his admission to the hospital memory was very defective. When seen again on February 11, 1903, his condition was much the same. His speech was somewhat thick, and there was distinct interference with the intellectual mechanism of speech. Much that he read he did not understand. The last examination was made on October 15, 1903, and it showed improvement in many ways, but no material change in the fundamental condition. He had returned to business, but was unable to take any active part in it. There had been no fixed delusions. Exaggeration, the speaker said, he was sure, played no part in the case, and he

had taken but little interest, in his suit for damages, which had been settled without coming to trial. His mental state was entirely distinct from the delusional one of hysteria; the condition resembled neurasthenia somewhat, but was distinct therefrom. His condition resembled more the pathological mental states occurring directly as a sequence of infectious diseases, surgical operations and exhaustion generally.

Dr. Joseph Collins congratulated the author on his brilliant presentation of this topic, but he did not quite understand Dr. Bailey's reason for speaking of the case as one of mental shock. If there ever was a case of profound physical shock, this case seemed to be an example of it. The occurrence of compound fracture of both legs associated with so much agony would seem to bear out this view. That mental shock was an accompaniment went without saying. This patient had gone into a collapse delirium for a few days, and had then re-entered that state after his removal to another hospital. It was safe to assume that his physical system experienced disturbances of metabolism; in other words, that an auto-intoxication had been engendered which, acting upon his deplorably weakened mental condition had resulted in a state which, as the author had well said, was observed after surgical operations. The mental disorganization was manifest more especially in the higher intellectual spheres, such as was commonly seen after collapse delirium. He would be interested to know what prognosis had been given in this case; also whether any examination had been made to determine whether his associative faculties had been equally disturbed.

Dr. Henry Rafel asked what was the patient's physical condition at the present time.

Dr. Adolf Myer said that this report reminded him of a patient whose history he had already given in a paper, in which were reported 31 cases of traumatic insanity. His patient had been greatly shocked as a witness of the subway explosion in Boston. He had not been physically injured by the explosion. The patient had been under observation in a hospital for about one year after the accident, and had been discharged practically well. The symptoms presented were those of neurasthenic incapacity. He was a roofer, by occupation, but after the accident could not continue this work for fear of falling. One day subsequently a fire in the neighborhood put his mental equilibrium to a test, and after this he drifted into a sort of hysterical state in which memory became very imperfect. Despite this he enlisted in the army, and was only released from active duty on the request of the physicians. On first coming under the speaker's observation, it was thought that he had general paralysis, but on further examination it was evident that he was neurasthenic. He gradually recovered his mental and physical health. In the 31 cases referred to, the question of mental shock or fright had been frequently met with. These cases were likely to be associated with hysteroid phases, and were found not infrequently with a history of dementia præcox. Since fright was a condition which could not be easily produced experimentally, one was forced to depend altogether upon casuistic reports, and for this reason the report under discussion was especially valuable.

Dr. Edward D. Fisher said that the extent of the injury was not by any means an indication of the resulting mental symptoms. There was something more than the pain which was the active cause of the resulting neurasthenia or dementia. It was a daily experience that persons suffered severe injuries without any resulting abnormal mental state. A case was mentioned in which a man of about sixty had been caught in a railroad accident, and although many had been injured he had entirely escaped. He had been in good health, and had not had nephritis or diabetes. About six



months or more after the accident he passed into a state of neurasthenia, and the accident became a constant topic of conversation. His mental and physical power slowly decreased, and within a year he died. This case could only be explained, to Dr. Fisher's satisfaction, by the shock; he would not be satisfied to explain it by any theory of auto-intoxication. He understood from Dr. Myer that autopsies on such cases yielded very meager results.

Dr. J. Fraenkel said that it was a well known clinical fact that epileptics in spite of the injuries they frequently received, practically never developed traumatic psychoses. He recalled a case, seen a few years ago, with Dr. Collins. When first seen by the speaker, the man was in an acute mumbly delirium, in which he was talking about falling from a scaffold. The question at once arose as to whether the patient was in full possession of his senses before the accident. Further inquiry showed that the patient lost consciousness at the moment that he was on the scaffold. The case was finally proved to be one of post-epileptic delirium. His personal belief was that physical shock alone was not sufficient to produce psychoses of the functional variety, and that it was necessary for the production of a post-traumatic psychosis to have the patient in the full possession of his faculties at the time of the accident. This was a particularly important point in connection with medico-legal inquiries. In the foregoing statement he included all purely physical injuries, even injuries to the head.

Dr. J. Arthur Booth said that the case reported by Dr. Bailey was especially interesting because he understood that the effect of litigation could be eliminated. The fact that the condition had persisted for two years pointed to organic changes. He would like to know whether there had been vomiting shortly after the accident.

Dr. Collins said that he had had several cases bearing very closely upon the statement made with regard to the patient's mental condition at the time of the injury. He did not wish to be understood as saying that in Dr. Bailey's case the mental symptoms were the result of metabolism of any sort. He would like to know what were the physical signs at the present time.

Dr. Bailey closed the discussion. He said he could not agree with Dr. Fraenkel fully with regard to fright being an essential element of traumatic hysteria. He recalled very distinctly a case in which it was stated that the hysteria did not occur before the accident, and that the patient was asleep at the time of the accident, and, hence, consciousness was in abeyance. It was, of course, very difficult to separate physical and mental shock. In the State of New York the Court of Appeals had decided that for a claim for damages there must be shown to be physical injury as well as mental shock. It was his opinion that his patient suffered chiefly from the mental anguish, the physical suffering being insignificant in comparison with the mental shock. The man's appearance was that of one suffering more from mental shock. Dr. Bailey thought the prognosis at the present time was bad. The man was distinctly neurasthenic, and although he could for a time associate and recognize, he very quickly became fatigued, and certainly presented absolute loss of mental faculties. His physical condition was, on the whole, good. His face flushed and paled as was common in neurasthenics. There had never been any vomiting.

## PHILADELPHIA NEUROLOGICAL SOCIETY.

November 24, 1903.

The President, Dr. H. A. Hare, in the Chair.

Dr. M. Allen Starr read a paper entitled: "Is Epilepsy a Functional Disease?" (To be published later in this journal.)

Dr. M. W. Barr said that the question as to whether epilepsy be a functional or an organic disease, has warm advocates on either side. The divergence of opinion is doubtless due to the character of the cases presented, and the standpoint from which, therefore, epilepsy has been viewed. For instance, those attacks appearing suddenly after irregular habits of living, might be considered by some as due to functional disorder of the brain or of the digestive organs, while maniacal and homicidal tendencies might indicate brain lesion or other organic trouble. From his possibly limited observation of some 800 cases, he could readily see how one could incline to whichever of these views might have preponderated in a hundred or so cases presented, and his experience led him to see further that both might be right and both wrong.

He held with Dr. Starr that epilepsy is a symptom of degenerative enfeebled condition, which may advance into disease according to the dominating power of cause. This following, of course, the line of least resistance, attacks that part of the system already disintegrated by degenerative influences—hereditary or accidental—which succumbs easily, and under repeated attacks may fall into a diseased condition. Such conditions, encountered again and again, the observer of some fifty or one hundred cases might with reason claim as cause, whereas more extensive data would prove it not cause, but effect.

The fact that 56 per cent. of 800 cases of epilepsy Dr. Barr had examined had a history of grave neurotic heredity—over 6 per cent. of heredity direct, being of epileptic parentage—tended to convince him that epilepsy is a symptom of degenerated conditions, appearing often in early infancy in the form of eclampsia. Indeed, he was confident that a large proportion of the spasms in early childhood were epileptic, due in a large measure to the influences of heredity, the combination and concentration of varied neuroses tending to produce and to intensify epilepsy.

It is possible that merely a high-strung, overwrought nervous condition of one ancestor may combine with tuberculosis, neuralgia, migraine or hysteria, to produce the same unfortunate result, as would the combination of any two of these, or again of any one, with insanity or imbecility. Again, it is claimed by some that this degeneracy does not extend to the brain, and that epileptics are not necessarily mentally enfeebled. The experience of such observers, may, it is true, cover larger area than Dr. Barr's, which was limited to some 800 cases, but among these cases drawn from every phase and class of society—from the homes of the wealthy and the cultured, the almshouse, the gutter, and the abodes of vice—he had yet to see the epileptic who is not imbecile—using the term in its broadest sense, imbecellus—tottering, needing help. In every case there is mental impairment—slight it may be, but present always—enfeeblement that every attack will tend to increase; every spasm weakens the intellect just so much. True it is that epileptics may accomplish many things in life; that they may earn a living, may be possessed of talents, may even fill accepta-

bly exalted stations—but somewhere or at sometime you trace the irresponsible act, the peculiar idiosyncrasy that betrays that mental impairment that always may be counted upon, gradual but certain in its progress.

Imbecility, idiocy, and dementia will be found in fully 80 per cent. of all epileptic communities. In feeble-minded institutions it is found chiefly among the brighter class of imbeciles—the cases of idiot epileptics being comparatively few and confined to those where the deterioration has been the gradual result of epileptic seizures.

As undefinable as it is baffling, he would yet describe epilepsy as a degenerated condition of tissue, nerve, and of nerve centers; by reason of which nervous energy from its very initial point of formation is tainted and corrupted in its production, transmission, and elimination. Thus this ill-regulated supply of vitiated force, finding insufficient control in degenerated nerve centers is given off in explosions, at irregular intervals; evidenced in temporary suspension of motor coördination, in convulsive movements,—total or partial—and often followed by general prostration—more or less excessive or prolonged—of the entire nervous system, causing a gradual but certain deterioration of all the powers of the being—physical, mental and moral.

It is claimed that from 50 to 75 per cent. of epileptics may be improved, and from 6 to 12 per cent. cured, but he had never known a recovery that he considered permanent, nor did he think there is data from sufficiently prolonged observation to substantiate such an assertion. He had no faith in those who profess to cure epilepsy, or in the permanent benefit to those so cured, and he found no warrant for departing from the dictum of Hippocrates, that: "The prognosis in epilepsy is unfavorable when the disease is congenital, where it continues to manhood or where it occurs in an adult. We may attempt to cure the young, but not the old." "*MAY attempt,*" mark you, but Dr. Barr found nothing to justify the hope of ultimate and permanent cure; and all we can say is that epilepsy is due to a something so subtle and elusive that it has so far escaped us; a poison, so to speak, for which we have not yet found the antidote. But release from such affliction even for a time cannot but be counted a boon, and the fact that treatment and environment can accomplish this, for so large a proportion, is surely a proof of progress. There are, indeed, many examples of complete exemption for various periods of time. He had under his care a man of 36, with a record of convulsions at two and one-half years, who within the last four years developed epilepsy, and for two years the attacks increased with force and frequency, but yielded gradually to treatment, and for the last twelve months, there has been a complete cessation of spasms. Another where there was immunity of spasms for sixty years; another for twenty-five years, and yet another for eighteen years. He once reduced the spasms of a man from several seizures a day to one in three years. The man's family physician considered him cured, but Dr. Barr never did, and he died finally in a sudden attack, before Dr. Barr could reach him, although responding within five minutes to call.

Indeed, a reduction of several seizures a day to an equal number per year is not infrequent. He recalled one case that had run the gamut of doctors in France, Germany and England, and who was with Gowers for two years. Dr. Barr reduced the spasms from twenty-eight in one day to one in every ten days. Christian Scientists have since, they say, accomplished cure, although the spasms still continue.

Some years ago, he had under his care an epileptic girl, whose father, a physician, boasting of his success in the cure of epilepsy, is now an insane epileptic in one ward of a hospital, and his wife and daughter, also insane epileptics, are inmates of another.



The life period in epileptics is mercifully brief, the spasms encroaching more and more upon physical resources. He found that twenty-five years is the average limit, and the comparatively few who enter upon or pass the thirty mark, rapidly become physiologically old.

Death, always imminent, may come at any moment, any spasm being liable to terminate in asphyxia, or in brain suffusion. Fully 25 per cent. of all deaths occur in status epilepticus, or else undeveloped constitutions, unable to resist, succumb readily to the inroads of disease, especially tuberculosis, or to cardio-vascular affections—embolism, thrombosis, etc.—to which epileptics are all peculiarly susceptible.

If, as is not an infrequently accepted theory, spasms are but an excessive accumulation and sudden discharge of nervous energy, due to imperfection and impairment of the sensory and motor cells, then, naturally, we look to pathologic conditions of the brain for a solution of the question and for facts concerning theory. But the pathologic changes are either so minute or so inconstant as to evade detection.

True it is, that the necropsies, in cases of death from status epilepticus, reveal intense congestion—the veins and sinuses deeply engorged, the meninges injected; the white portion of the brain shows punctate hemorrhages, and the gray matter is darkened or has a pink tinge. But these are found also in cases of prolonged asphyxia which were non-epileptic, and, therefore, can be accepted only as a result and not a cause.

Pathology, therefore, still enshrouded in obscurity, furnishes little more than grounds for conjecture, and one may as well question the silenced gun of its cannonading; the explosion has come and gone, and left no trace of how.

Dr. S. Weir Mitchell said that for many years he had been inclined to accept the view announced by Dr. Starr, but that there were difficulties in his way of accepting some of the means by which the speaker desired to prove his position. One of these was as to the constant finding in the brain of some lesion which was assigned as the cause of the epilepsy. In epilepsy, the necropsy nearly always comes after many years of the disease, and nothing is allowed for the changes caused by the disease itself. He would like to hear something said in regard to cases of epilepsy which occurred in men of the highest intelligence, like Napoleon and Mohammed, but who only occasionally had epileptic attacks. He had himself known of several such cases. One was a lawyer of great distinction. In such cases, where the attacks occur rarely, he would find it still more difficult to attribute them to an organic lesion.

With regard to treatment, he had seen a number of people apparently get well from epilepsy, and go for many years without an attack. In some cases, the attacks had stopped under curious circumstances. In one case the attacks began at the age of ten years and continued until the age of twenty-one, when the patient entered the army during the civil war. From the time he got into the saddle until his death, many years later, from heart disease, he did not have an attack. A second case was that of a young Virginian, who came under the speaker's observation two years before the war. He had frequent and violent attacks. He entered the service and lost his epileptic attacks, and had had no recurrence when last seen, fifteen years later. The attacks are often suspended in a curious way by a variety of causes. Operations on the head or even other portions of the body will suspend the attacks for a certain length of time. The bringing of the patient into the hospital for the purpose of studying the attacks, is often sufficient to suspend them for a number of weeks. He had seen the attacks suspended by an attack of jaundice, and also in two

cases by whooping-cough. Pneumonia and also bronchitis have suspended the epilepsy.

Dr. F. X. Dercum remarked that for many years he had believed that there were morphological changes in epilepsy. A number of years ago he had presented a series of twelve brains from epileptics, each one of which showed some gyrus or convolitional anomaly. The morphological peculiarities are not limited to changes in the nervous system, the great mass of cases presenting obvious stigmata of arrested development in other parts, as shown by the high arched palate, anomalies of dentition, peculiarities in the shape of the head, skull, etc. We have undoubtedly in the epileptic a defective organism. Although we recognize the existence of these curious changes, they do not explain the occurrence of convulsions. In a large proportion of the insane there are structural peculiarities and morphological defects. The mere existence of morphological peculiarities does not mean epilepsy. It must be that there is something else at work. We must not forget the observations made with regard to the toxicity of the secretions in epileptics as compared with the normal individual. It has been found that the blood serum of the epileptic is hypertoxic. Observations have also been made on the condition of the urine. Several writers have noted a persistent hypertoxicity of the urine. These facts must have a meaning. It may be that in the epileptic the tissue metabolism is different from that in the normal individual, and we have toxic substances present as a result.

We must widen our conception of epilepsy beyond considering it a morphological disease purely. It is one largely, but can not be one exclusively. It has been noted on a number of occasions that the epileptic seizures are stopped by an attack of pneumonia or other grave illness. It is possible that the increased oxidation of the tissues under these circumstances may lead to a burning up of the toxins, as it were.

While it is true that we cannot cure epilepsy, Dr. Dercum held that in a large number of cases the disease can be mitigated, and in a certain number of cases to such an extent that it amounts to a cure. The word cure has only a relative application.

Dr. Charles K. Mills fully agreed with Dr. Starr that epilepsy is an organic disease. He did not think that anybody with experience could hold that it was anything else. The point is to discover what is the original condition in this organic disease. If there were any criticism to be made on the papers and the remarks already made, it was that they had not in a clear cut manner separated this disease, idiopathic epilepsy, from the other forms, such as Jacksonian epilepsy, epileptic attacks with diplegia and the toxin forms. He did not know that he could do this any better than the other speakers had done. It was clear to him that the term Jacksonian epilepsy should be restricted usually to a disease in which there is an organic lesion which is easily discoverable by the naked eye, or by the low powers of the microscope. Idiopathic epilepsy is of another class. It belongs to the same class of degenerative diseases as dementia præcox. Anatomically speaking, it is a cortical agenesis, but it is more than this.

With regard to lesions of Ammon's horn and similar lesions which he had studied twenty years ago, he did not believe that they were the basis of the disease. It is anatomically a cortical and cerebral arrest.

Dr. William G. Spiller said he had examined the records of a hundred cases that had come under his observation within the last year or two. He had found the age of onset to be between 1 and 5 years in 30 cases, between 5 and 10 years in 14 cases, between 10 and 15 years in 13 cases, between 15 and 20 years in 15 cases, between 20 and 25 years in 9 cases, between 25 and 30 years in 5 cases, between 30 and 35 years in 7 cases,

between 35 and 40 years in 1 case, between 40 and 45 years in 1 case, between 45 and 50 years in 1 case, and unknown in 4 cases.

Epilepsy had occurred in the same family in 17 cases. An aura was recognized in 38 cases. A history of alcoholism in one or both parents was obtained in 11 cases. Mentality was much impaired in 12 of the 16 cases studied at the Philadelphia Hospital. These 16 cases were in a more advanced stage of the disease than the remaining 84 cases.

Some interesting statements were obtained regarding remissions. In one case convulsions began at the age of 4 years and ceased until the patient was 13 years old. In another case, spasms occurred during teething, petit mal developed at the age of 7 years, but soon ceased, and epileptic attacks began again at the age of 16 years. A female, 19 years old, had teething spasms at 18 months, but had no further epileptic attacks until she was 19 years old. A male, 26 years old, had attacks that ceased when he was 5 or 6 years old, but began again when he was 22 years old. His brother was epileptic. A male, 14 years old, had attacks when 5 years old; these soon ceased, and he had no more attacks until he was 12 years old. A male, 25 years old, had convulsions until he was 5 or 6 years of age. The convulsions began again when he was 17 years of age. A female, 44 years old, had convulsions when she was 18 months old. They then ceased until she was 12 or 13 years old, and the convulsions began again at that age and were typical. From 16 until she was 43 years old she had no convulsions, although she had attacks in which she felt faint but did not lose consciousness. When she was 43 years old convulsions began again and were frequent. Puberty and the menopause were important periods in her case regarding the convulsive attacks. This case afforded the nearest approach to a cure Dr. Spiller had seen.

The effect of unusual exertion was noticed in one case. A male, 20 years old, had his first convulsion when 19 years old, after dancing all night. He had had 5 attacks, and all five had occurred while he was playing ball.

The early manifestation that may occur in hereditary cases was shown by a girl, 4 years old, who had had about 100 convulsions in the first week of life, then no more until she was 3 months old. A paternal aunt and paternal cousin had convulsions. The convulsions in the child were typical.

The influence of pregnancy was shown in two cases. A woman, aged twenty-six years, had had epileptic attacks since she was fourteen years old, and had been free from them only when pregnant. Another woman had her first epileptic attack one week before the birth of her child.

The influence of menstruation was shown in a number of cases. As an illustration, a girl aged fifteen years, had her first convulsion five days after the first menstrual flow began.

Two cases cited as illustrations of sensory epilepsy were as follows: A man, aged fifty-one years, had his first attack when he was forty-four years old. He had used tobacco to excess. No hereditary taint was known. The aura was a drowsy feeling. The attacks consisted of numbness in the right side of the tongue and right upper and lower limbs. Sometimes he would lose consciousness and fall; at other times when consciousness was preserved he lost his speech. Convulsions were not observed until about seven years after the beginning of the sensory attacks.

A male, aged thirty-two years, had attacks first when he was twelve years old. He had convulsions and at other times attacks in which he lost one-half of the visual fields, sometimes the left half and sometimes the right half. This form of attack lasted ten to twenty minutes, and the attack was followed by numbness of the body and headache. The first attack



of hemianopsia occurred when the patient was fifteen years old. This case shows a relation between migraine and epilepsy.

Dr. Spiller referred to a peculiar aura in one case. A ravenous appetite preceded the convulsive attack ten to twelve hours, and was almost invariably followed by a convulsive attack. Another peculiar aura was the sensation of a bright light and a taste of raw beef. Objects appeared larger and sometimes smaller.

In most cases of epilepsy the gross lesion, when present, precedes the first convulsive attack, but that this is not always so was shown by the following case: A male, aged sixteen years, had his first epileptic attack when eight years old. He had had many severe convulsions, and when fifteen years old had status epilepticus. About eight hours later his entire right side was paralyzed. Speech was lost about a month. When examined at the age of sixteen years the right limbs were spastic, some motor aphasia was present, the gait was good but stiff, and the grip of the right hand was about normal. It seemed probable that a vascular lesion had developed during the status epilepticus.

Dr. W. W. Keen said that after the brilliant papers of Horsley some years ago, we all looked forward to the time when surgery would do wonders for epilepsy, but time has shown that surgery can do much less than was then believed to be possible. In a few cases he had been able to effect what was apparently a cure. Reference was made to the case of a lad who fell down stairs. Whether the fall was the cause of the epilepsy or his first epileptic fit was the cause of the fall, was uncertain. The fall caused a small scar on the head. After the fall he had epilepsy for a number of years, the attacks increasing in frequency. Operation was then determined upon and only the scar was removed, as there was no evidence of injury to the bone; nothing more was done. The operation was performed twelve or fifteen years ago and the young man had not had a single attack since.

Twelve years ago the speaker had been called to see a young man who had been struck on the head by a pulley-wheel weighing thirty pounds and falling thirty-six feet. The blow was received in the middle line of the head a little posteriorly. A considerable portion of bone was removed and there was a large loss of brain substance. The superior longitudinal sinus was torn. The patient recovered and some time later was admitted to the hospital on account of a continuous discharge at the posterior portion of the head. A piece of necrossed bone was removed, showing the T-shaped groove for the posterior portion of the longitudinal sinus and the two lateral sinuses. Between the line of the accident and the removal of this bone, he had one epileptic attack. He was seen within a few days and he reported that he had not had another attack since then.

A third case was seen at the Orthopedic Hospital ten years ago. The patient stated that the attacks began in the night and always in the right thumb. The attacks were becoming more frequent, and had appeared also in the daytime and sometimes she had more than one. During the two weeks that she was under observation during the entire night, five attacks were observed, each beginning in the right thumb, extending to the arm and then becoming general. The thumb-center on the left side of the brain was exposed, identified by the battery and excised,—a piece the size of the last phalanx of the finger being removed. On recovery from the ether, there was paralysis of the muscles of the thumb and not a single other muscle was affected. In the course of the next few days the paralysis extended as far as the elbow. After remaining stationary for a few days, it began to recede. At the end of 17 days slight voluntary movement in the thumb was noted, and in six months no difference could be detected in the

two hands. The case was followed for five years, and during that time the attacks had occurred only about once a year.

He referred also to a case reported by Dr. Briggs, of Nashville, of a girl who was epileptic and also had necrosis of the tibia. He operated on the necrosis and five years later the girl had not had an attack of epilepsy.

In a number of cases where it seemed clearly demonstrated that there must be a gross lesion of the brain, he made a large osteoplastic resection of the skull and found nothing. In the majority of the cases he had operated upon there had been no benefit although they had not been made worse. In spite, however, of the fact that only a small number of cases had been benefited or cured, the disease is such a dreadful disorder and its consequences, physical, mental and social, so deplorable, that he was in favor of operation.

Dr. A. A. Eshner stated that from the observation of a large number of cases of epilepsy clinically, he had come to the conclusion that the disorder is one of unstable motor equilibrium which is influenced by a variety of causes. Some are the so-called reflex, many toxic, and some result from deranged metabolism. He believed that the frequency of the attacks is influenced somewhat in the same manner as other habits are influenced. They are permitted to recur with great frequency a tendency to increase will manifest itself, while if the frequency is diminished a tendency to lessen will manifest itself.

He was prepared to believe that this condition of unstable equilibrium is due to structural disturbance. He believed also that this in turn was aggravated by the recurrence of the attacks. There is thus established a vicious circle.

He suggested that something more might be said with reference to the relation of infectious disease to epilepsy, and also as to the eclampsia of childhood.

Dr. J. Madison Taylor said that he arose with diffidence after hearing words of such wisdom and power, but some one should protest against the hopelessness of the conclusions expressed. He begged that the statements of Dr. Starr, when published, might be modified and made less pessimistic. Dr. M. Allen Starr comes from New York with two thousand personally conducted cases, and says, in effect, that epilepsy cannot be cured and little mitigated. His hearers, and worse, the many readers of his published utterances, will acquire the conviction that nothing can be expected from medical treatment. Dr. W. W. Keen, the high priest of brain surgery, agrees with him that few, or no, good results can come from operative interference. Two classes of people will be disappointed grievously: one, the medical men, who at least make honest efforts to cure or mitigate the horrors of epilepsy, and they should be allowed to cherish expectation of undiscovered possibilities. The other class, the sufferers from the *Morbus Sacer*, should not be deprived of hope for the future. The statements heard were from facts derived from two chief sources, one clinical experience which offers little promise; the other, the dead-house and the findings of neuropathology. Practically nothing had been said of physiology, or variants in normal processes, a study of which in this direction is not yet exhaustive. Large possibilities exist through a study of the functions of the ductless glands, opened up by the researches of Dr. Sajous, through which new conclusions may well be reached.

Again, the study of vaso-tonus and metabolism, as affected by mechanical control of nervous mechanisms restoring lost balance, offer much. Finally the, as yet unknown, possibilities of controlling the developmental processes in the young have been so far only suggested, but are of great

promise. By no means should hope die till epilepsy be fully studied by qualified physiologic clinicians and therapists.

Dr. F. Savary Pearce remarked that he did not believe that all cases of epilepsy were of organic origin. Children often have at an early age, convulsions which are exactly like those of idiopathic epilepsy, but the child gets well and grows to adult life and has no further trouble. With reference to shock and fright as causes of epilepsy, he had seen one case of epilepsy due to mental shock. He did not consider that to be a case of organic diseases. Bearing on the effect of fright, he alluded to the case of a young girl worried over a love affair, whose hair turned white as a result. She was well mentally. Another instance referred to was that of a man whose hair fell out universally as the result of worry. This was not an organic case, at first at least. He had now under observation a child with marasmus and organic disease of the brain. The child has had as many as four hundred epileptic attacks in a month, the average being six or eight a day. The child is improving as regards the marasmus, and has had no attacks of epilepsy for six or eight weeks. This is an organic case that may recover. The child is taking no bromides; but is given the syrup of the iodide of iron. Dr. Pearce did not think that such conditions as gliosis and enlargement of the thymus gland were causes of epilepsy.

The speaker also referred to some studies of the blood which he had made in epilepsy, which seemed to show that there was some derangement of the blood-making organs in this disease.

He had seen typical alcoholic epilepsy. Every time the man would drink he would get epilepsy. If this patient stopped drinking, the epilepsy would cease. This he considered a symptomatic epilepsy and not an organic disease. He did not believe that epilepsy implied organic disease of the brain primarily at all; but that disturbed function was the cause later of any organic changes that may be found in idiopathic epilepsy.

Dr. M. Allen Starr, in closing the discussion, said that he had expected a certain amount of criticism of the position that he had taken, and admitted that some of the statements brought forward were strong and did not coincide with the conclusions that he reached. He thought, however, that the consensus of opinion was rather in favor of the view that a great many cases of epilepsy, at least, were organic in their nature. The statement made by Dr. Barr that idiots were less liable to epilepsy than weak-minded individuals, coincided with his observations. This indicates that epilepsy is a disease of the more highly developed centers. Confirmation may be drawn from comparative pathology. Animals do not have epilepsy to any great extent. The experiments of Brown-Séquard on guinea pigs have failed of confirmation in other hands.

The remarks of Dr. Weir Mitchell had been of extreme interest to him. His first point has been urged by every writer upon the subject of the lesion in epilepsy,—namely, that the lesions in the brain of epileptics are secondary. This argument he thought carried little weight. Many of the lesions may be secondary, but in such cases there may be a small plaque of sclerosis as the cause of the epilepsy. It is admitted that in Jacksonian epilepsy such a lesion will cause the attacks. If this is so in cases where the lesion can be located, it is not likely that a similar small lesion may exist in the brain of the epileptic and escape our notice? Brains have not yet been examined with sufficient care to show that there are no plaques of sclerosis. To examine one brain thoroughly requires expert work ten hours a day for a year. While it may be that these large areas of sclerosis are the result of long-continued degenerative change, yet he believed that they were the culmination of something that started somewhere a long time before.

Dr. Mitchell had referred to individuals with a high type of brain hav-



ing occasional attacks of epilepsy. Others had spoken of the alcoholic and toxic cases. He had not been speaking of the exceptional cases that have an attack once in two or three years. He had referred to the ordinary idiopathic epilepsy that physicians are seeing every day. He was not blind to the fact that a man may have a toxic convulsion or that an epileptic may have a convulsion as the result of a toxic condition.

Dr. Mitchell had stated that he had seen some cures of epilepsy. A few months ago, at a discussion before the London Pathological Society, Dr. Turner had reported a large number of cases of epilepsy with six per cent of cures. Recently, in looking up the subject of optic nerve atrophy, the speaker had come across a series of cases of optic nerve atrophy without apparent cause. In a very interesting series published in London, there were two cases of primary optic nerve atrophy without any explanation, occurring at the ages of sixteen and eighteen years, the patients living for thirty-five and forty years. When the cases came to autopsy, a small tumor was found in the brain in both instances as the cause of the optic nerve atrophy. It might be said that these were cases of brain tumor cured. If an individual can carry a brain tumor for forty years without symptoms, Dr. Starr saw no reason why he should not carry a small plaque of sclerosis which had occurred early in life and caused a fit perhaps without producing a second fit. The fact of cure does not militate against the existence of a lesion. The fact that epilepsy may occur in men of high type would indicate that in such cases the lesion does not involve the parts concerned in higher brain processes. We know that hemiplegia may exist for years without impairing the mental condition. He did not claim that the existence of a small plaque was necessarily productive of mental deterioration. The effect of mental influence in epilepsy is wonderful. This is shown by the effect of operation and of change of physicians. It is his custom after treating a patient for some time when the patient ceases to improve or goes backward, to refer him to another physician.

He agreed perfectly with what had been said about attacks of epilepsy being checked during the course of infectious diseases at times. He had repeatedly seen this in typhoid fever. Several of the speakers had alluded to toxic states. He had also referred to this in his paper and had spoken of the necessity of eliminating all toxic conditions. We know very little about physiological pathology. We know a good deal about morphological pathology. There is such a thing as the pathology of the change of function, and in many cases of epilepsy the disease rests upon that basis.

One of the speakers did not think it necessary to infer a lesion in one center of the brain because the aura affected that center. The speaker had a patient who had an aura in the right visual field with every attack from the age of fourteen years to 37 years. Then he suddenly developed a right hemianopsia. It seems likely that the aura had been an evidence of some slight lesion involving the occipital lobe.

With regard to the influence of menstruation on the occurrence of the attacks, patients often assert that the attacks are more frequent at that time, but a careful detailed observation usually shows that this is an error. In many cases there is a certain periodicity in the attacks.

With regard to Dr. Taylor's statement that the speaker held that there was no help for the epileptic, he did not at all agree with that view. He believed that in epilepsy we are dealing with an individual who is weak, and it is necessary to take away every possible source of irritation. He thought that every one would admit that there was a field for treatment in epilepsy, but it has its limitations. The patient should not be encouraged to hope too much, or his experience would lead to disappointment.

## Periscope.

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### CENTRALBLATT FUER NERVENHEILKUNDE UND PSYCHIATRIE

(Vol. 14, 1903, No. 5, May.)

1. The Conception of Compulsive Ideas as a Safeguard Neurosis (Abwehr-neurose). WILHELM STROHMAYER.

Strohmayer quotes Freud's definition, "Compulsive ideas are always transformed reproaches which arise from a sexual or sensual act in childhood"; they are the tormenting tug from a consciousness of guilt, which serves to protect from the habit. Strohmayer gives a full account of a case which seems to support this theory.

(Vol. 14, 1903, No. 6, June.)

1. On Morbid Anxiety of Professional Character—"Anxiety of Sacrament-Administration" in Priests. W. VON BECHTEREW.
2. Lumbar Puncture and Cytodiagnosis. ALBERT DEVAUX.

1. *Sacrament Anxiety in Priests.*—Von Bechterew says that there are special morbid anxieties related to particular callings, and that these are apart from the general anxious states which arise from evident pathological predisposition. The symptoms of "sacrament anxiety" appear at the approach of the hour for administering the rite, and consist of palpitation of the heart, an agonized fear of blundering, uncertainty of the voice, trembling of the whole body, prickling in arms and legs, etc. All these symptoms disappear if the priest turns back from the altar. Giving up this service for two or three months led to no improvement in the case described. The patient was about 60 years old, had a good family record, and physical examination was negative. Von Bechterew says this affection is not rare. In treatment he advises that the occupation of the victim be given up. If that is not feasible, then prolonged rest, hydrotherapy, sedative nervines, and suggestion under hypnosis are the remedies.

2. *Lumbar Puncture and Cytodiagnosis.*—Devaux has written an excellent essay on the technic and application of Quincke's lumbar puncture.

(Vol. 14, 1903, No. 7, July.)

1. Some Remarks on the Principles of Investigation of Hysteria. L. LOEWENFELD.
2. Contributions to the Knowledge of the Movements of the Iris. BUMKE.
3. On Color and Space. P. J. MÖBIUS.
4. The Sources of Failure with the Marchi Method. WALTHER SPIELMEYER.

1. *The Investigation of Hysteria.*—Loewenfeld says that in the last two decades the efforts to establish the nature of this interesting disease have had scant results, one theory following another without displacing it. First came the *suggestion-theory*, which made all manifestations of hysteria dependent upon the patient's ideas; next, Janet's psychasthenic theory laid stress on a narrowing of the field of consciousness; after that, Freud's sexual-psychologic and Sollier's sleep-theories, the newer emotion-theory and a revival of the old reflex theory. Loewenfeld believes with Huchard, Charcot et al., that the "hysterical character" may be entirely absent in the disease, this so-called character being often only a complicating psychopathic degeneracy. It may, for instance, be wanting in cases of hysteria

due to alcoholism. Loewenfeld speaks of the difficulty of drawing a line between symptoms of hysteria and of neurasthenia. He doubts whether *globus* and esophageal-spasm are specific hysterical symptoms. We need detailed studies to build stone upon stone, a proper conception of hysteria.

2. *The Movements of the Iris*.—Bumke's paper is a preliminary communication on the "galvanic light reflex." Helmholtz and others showed that a light-sensation is occasioned by weak galvanization of the eye; but apparently no one studied the pupil under these circumstances. Bumke finds that the pupil contracts when the eye is galvanized, just as if exposed to a brighter light, but the movement of the iris is so slight that he employs the Zehender-Westien magnifying lens to study it. A current-strength of two or three milliamperes caused, upon anodal closure, a narrowing of both pupils of from one to two millimeters. The reflex apparatus quickly tires under these tests. The galvanic light reflex follows the laws of the light reflex. Bumke by appropriate tests proved its independence of the oculomotor, of the trigeminus, of the Westphal-Piltz phenomenon and of the pupil-contraction which Lukacz, McCarthy and others have shown to accompany the ophthalmic reflex. The galvanic current evidently acts, in this case, upon the retina.

3. *On Color and Space*.—Möbius' paper is physiological and psychological, and not of direct clinical interest.

4. *The Sources of Failure with the Marchi Method*.—Spielmeyer says that the chrom-osmic acid method was first set forth by Marie, briefly, in 1885; but Marchi and Algeri modified it so that it became a regularly-used method. The chemistry of the process is still dark. Sections stained by it cannot be read off as are Weigert preparations; "they demand a critical judgment," as Nissl says. The black droplets may be too few or too abundant. In the former case it may be that the soaking in osmic acid was not thorough enough or that the alcohol used afterward has dissolved the droplets. Spielmeyer does not favor the method of gradual concentration of the osmic solution; nor the addition of sodium iodide to it, which Busch recommended, nor Raimann's plan of cutting sections in paraffin, and then staining with Marchi's fluid, having first hardened in Muller's. With the best technic the Marchi method yields incongruous results sometimes, due perhaps to conditions in the nerve fibers themselves. Thus in many cases normal Marchi sections show black specks and granules in the nerve fibers. These are smaller than the degeneration-droplets. Such granules are seen near the vessels in seniles and in paralytics; and they may form black masses in the interstices and at the periphery in polyneuritis. Granules are found in the intra-medullary roots of the cord in the new-born and in children. A second group of these pseudo-Marchi reactions is caused by technic. Cutting or tying pieces of the cord, or pressure upon the roots, may give rise to a mass of black droplets. Of the hardening agents Müller's fluid is the best. The combination of it with formol is condemned because of the blackening effect which may simulate a Pal-preparation. The duration of the chromicizing process is of little importance—it may be from eight days to six months. Sudan III and scarlet red may be used for "control" staining, but the worker should learn to distinguish what is true Marchi reaction and what artefact.

(Vol. 14, 1903, No. 8, August.)

1. Contributions to the Knowledge of the Movements of the Iris. BUMKE.
2. Clinical Experiences with Veronal. WALTHER SPIELMEYER.
3. On the Present Position of the Pathological Anatomy of the Central Nervous System. NISSL.

1. *The Movements of the Iris*. II. *On Methods*.—This paper of Bumke's follows that on the galvanic light-reflex which appeared in the



July *Centralblatt*. In his studies he used Sommer's apparatus for permitting only a fine pencil of light to enter the eye. To measure the pupil he made use of a pupilometer invented by himself, and he combined this ingeniously with the Westien lens. This paper deals with the various refinements of technic which Bumke has developed in his studies of the pupil reflexes.

2. *Clinical Experiences with Veronal*. Spielmeyer has tested this drug, which was reported by E. Fischer and J. von Mering to be the most useful of the new class of hypnotics studied by them. Spielmeyer gives his experience of 450 doses of the drug, ranging from one-half to two grams each, in hot milk or tea, or in wafers. This experience is favorable. Sleep ensued as a rule after about half an hour; in severe insomnia, after 1½ to 2 hours. Scarcely any unpleasant effects were observed,—no gastric or intestinal symptoms, and nothing to contraindicate its use in arteriosclerosis or heart disease. Jolly and Oppenheim have mentioned a kind of drunkenness or some heaviness in rare cases. Occasionally a macular rash appears. Spielmeyer concludes that veronal is a good sedative and above all one of the most valuable hypnotics.

3. *The Present Position of the Pathological Anatomy of the Nervous System*.—Nissl's reflections on the development of the branch in which he is so distinguished are instructive and entertaining. He speaks of three periods in this development: the *first* ending in 1860 with the researches of Max Schultze, Deiters and Gerlach—the histological period; the *second* comprising two decades, was dominated by Meynert—the period of fiber anatomy, in the latter part of which Weigert's method appeared, also Guden's and Flechsig's methods and studies of cortical localization; the *third* period, beginning in 1890, is marked by the Golgi method and the neurone doctrine. The greatest progress at present is being made along the lines of histo-pathology.

W. PICKETT (Philadelphia).

#### NEUROLOGISCHES OENTRALBLATT

(Vol. 22, 1903, No. 12, June 16.)

1. The Weight of Brains and Parts of Brains of Infants and Older Children. H. PFISTER.
2. A Contribution to the Diagnosis of Tumors of the Thalamus and Frontal Lobe. BAYERTHAL.

1. *The Weight of Brains of Infants*.—Pfister in this article gives a résumé of all the work he has done on brain weights. He has examined 302 brains, of which 161 were from males and 141 from females; 228 of these brains were used for partial weighing. The children from whom these brains were obtained were from one week to fourteen years of age, and were inmates of a charity institution. Only normal brains were used, all pathological conditions being rejected. The tables as given show how the work was done. Some of the conclusions Pfister reaches are as follows: The total brain weight of boys is larger than that of girls, this difference in the beginning of life is small (10-15 gr.), but becomes greater as life advances. In the developmental period the brains of boys gain more weight than those of girls. The relation of weights is not constant, but varies considerably. The absolute weight of the cerebellum is smaller in the female, and in the course of development the cerebellum of the male gains more rapidly. The relative weights of the cerebellum varies in children of the same sex and age. The cerebellum grows faster, especially in the first, third and second third period of life, than the whole rest of the brain. The weight of the middle cerebrum is larger in the boys than in the girls in all conditions. The weight of the cerebrum also varies considerably in brains

from the same conditions. In a little more than one-half of the brains examined, the left hemisphere was a trifle heavier.

2. *Diagnosis of Tumors of the Thalamus and Frontal Lobe.* Not completed.

(Vol. 22, 1903, No. 13, July 1.)

1. The Cytodiagnosis of the Liquor Cerebrospinalis. S. SCHOENBORN.
2. A Contribution to the Study of Tumors of the Thalamus and Frontal Lobe. (Concluded.) BAYERTHAL.

1. *The Cytodiagnosis of the Liquor Cerebrospinalis.*—The author refers to the highly interesting experiments that have been carried on by numerous French observers for the past two years, where an examination of the cerebrospinal fluid taken by lumbar puncture showed a leukocytosis in certain diseases. He quotes Sicard's conclusion that "by all syphilitic and metasyphilitic diseases of the central nervous system, a more or less high grade lymphocytosis can be found in the cerebrospinal fluid." This finding was only obtained in such diseases where there was an irritation of the meninges, as in general paresis, myelomeningitis, tabes dorsalis, in seven cases of multiple sclerosis and in seven from eleven cases of herpes zoster; the latter an interesting finding. Lymphocytosis was not obtained in polio-myelitis, syringomyelia (old cases), old hemiplegia, polyneuritis and functional cases. Schoenborn confirmed this finding in eight cases of tabes dorsalis, and did not find it in other cases. This finding is very interesting, and examination of the cerebrospinal fluid may be an important aid in the diagnosis of organic diseases, especially of syphilitic origin.

2. *The Diagnosis of Tumors of the Thalamus and Frontal Lobe.*—The history of the first case is as follows. Woman, 31, first complained of vomiting and gastric disturbances. This was soon followed by a weakness in extremities, and she was compelled to go to bed. Examination showed a paresis of the right upper and lower extremities, no changes in sensation and no changes in the reflexes of either side. The face was not involved. The pupils are equal; the left one does not react to light. There is incontinence of urine and feces. The mental condition is dull, stupid and apathetic, and responds incoherently to questions. No change in eye grounds. The left parietal bone is tender on pressure. Further examination later showed no change, except that a few days before operation she developed a clonic, sometimes fibrillary tremor of the right side of the face, which was followed by a paralysis of the lower branch only. The eye glands showed a beginning choked disc and the reflexes became exaggerated on the right side. An operation was performed on the left side over the motor region, but no tumor was found. Post-mortem examination showed a tumor, a gliosarcoma, of the left optic thalamus.

The second case was properly diagnosed. Woman, 37, previously healthy. Admitted to the hospital for melancholia. Patient became changed in disposition and apathetic; would complain of headache, left frontal region. Later attempted witticisms. One day had a general epileptic convulsion, which was followed by a right-sided hemiparesis, later by a complete brain paralysis. Double choked disc, more marked on the left side, was found. The patient would hardly reply to questions. Had agraphia. Would recognize correctly by name objects placed before her. Later a dilatation of the left pupil with ptosis, weakness of the left abducens, hyperesthesia of the supra- and infra-orbital distribution of the left side, and finally a right-sided hemianopsia appeared. The woman died, and a sarcoma of the left frontal (basal) lobe was found.

(Vol. 22, 1903, No. 14, July 16.)

1. Remarks Concerning Artefacts Appearing in Marchi Preparations. E. STRANSKY.

2. Concerning the Diagnostic Value of Irregular Pupils in the so-called Organic Nervous Diseases. J. PILTZ.
3. Concerning the Pathogenesis of the Specific Illusions of General Paretics. A Contribution to the Psychological Experimental Study of Dementia Paralytica. A. WIZEL.

1. *Artefacts in Marchi Preparations.*—The author calls attention to the presence of black staining particles in the fibres of peripheral nerves, which have been in some way injured in removal. These particles are found in the retracted portion of the fiber, and round and cuneus-shaped granules are found running parallel to the long axis of the fibre, but never extending to its periphery. These masses may be present when the appearance otherwise is perfectly normal. Stransky calls attention to the importance of recognizing these masses.

2. *Irregular Pupils.* (Continued article.)

3. *Specific Delusions of General Pareis.* (Continued article.)

(Vol. 23, 1903, No. 11, June 1.)

1. The Descending Tractus Tecto-Spinalis, the Nucleus Intra-Trigeminus and the Localization in the Retina. O. KOHNSTAMM.
2. Congenital Pupillary Rigidity. M. REICHARDT.
3. The Pathology of Toxic Brain Diseases.—W. ALTER.

1. *The Tecto-Spinal Tract.*—The secondary motor tracts are gaining a greater clinical and physiological importance. These tracts are also described as coördinating tracts. It has been thought that the tractus tecto spinalis has its origin in the cells situated in the anterior quadrigeminal bodies, then cross in Meynert's decussation and run in the opposite predorsal longitudinal bundle to the ventral column of the cord. The author has been unable to find in the cells of the anterior quadrigeminal bodies a "reactionary tigrolysis" after hemisection of the cord, but saw such cells in the middle of the mesencephalic trigeminus nucleus; so Kohnstamm concludes that this is the only nucleus in the roof of the mid-brain which sends fibres to the spinal cord. He quotes the experiments of Van Gehuchten, Parlow, Münzer and Wiener in corroboration of this view. The author agrees with the views of Helmholtz and Exner regarding the cause of localization in space, which are given in full.

2. *Pupillary Rigidity.*—Reichardt discusses the importance of the presence of immobility of the pupil from a diagnostic and prognostic standpoint. It may occur ten years or more before the symptoms of tabes or general paralysis show themselves, or it may be a manifestation of cerebral, spinal or hereditary syphilis. He details two cases, one a paranoiac, and the other an idiot and epileptic, who had rigidity of the pupils. The last case died, but a microscopical examination showed no cause for the condition, so Reichardt assumes that this may be a congenital condition.

3. *Pathology of Toxic Brain Diseases.*—Alter refers to Ceni's interesting contributions regarding the specific autocyto-toxine and antiautocyto-toxine which Ceni found in the blood of epileptics, and dwells on the importance of this finding. He speaks of the growing tendency to regard as the cause of certain psychoses, as general paresis and epilepsy, a toxic process which acts upon the nerve cells.

WEISENBURG.

#### ARCHIVES DE NÉROLOGIE

(Vol. 15, 1903, No. 90, June.)

1. Latest Conceptions and Definitions of Hysteria. ALBERT CHARPENTIER.
2. Psychiatric Clinic at Geissen. PAUL SÉRIEUX.

1. *Hysteria.*—The author compares the views set forth by Bernheim:



"New Conception and Etiology of Hysteria," and those of Babinski: "Definition of Hysteria." Says Babinski: "The characteristic which defines hysteric-manifestations is the possibility of its being reproduced by suggestion with a rigorous exactitude in certain subjects and of disappearing under the exclusive influence of persuasion." Suggestion implies something evil; persuasion that the act to be accomplished is in harmony with reality, with good sense. To say to a person in good health that his right arm is becoming paralyzed, that it is paralyzed, is to effect a suggestion, for it is intended to bring about that which to a person of sense is an unreasonable thing. On the other hand, to declare to one affected with psychic monopoly that his paralysis will disappear under the influence of his re-educated will, is to cure him by persuasion, for it is intended that he accept an idea eminently reasonable and in harmony with reality. Bernheim gives to hysteria the following definition: "An hysterical subject is one who has an hysterogenic equipment (*appareil*), which is well developed and easy to excite." This substitution of the words "hystero-genic equipment" for the word "hysteric" in the hope of a definition recalls a little, the definition which a physician once gave of the soporific power of opium. Of the 208 observations set forth and classified by Bernheim, there are only 32 belonging to hysteria. He claimed at this epoch not only to be able to hypnotize all the world, but also to cure affections, very diverse in character, and which he called hysterical, by suggestion. We shall not consider, one by one, the observations published in the two volumes, but we recall the words which he wrote, *apropos* of an affection classified as cerebellous, certain symptoms of which, and these are not trifling, were caused by magnets: "Is it not strange and almost marvellous to see so grave an affection, such complex symptoms of titubation and vertigo, dating more than seven years, which had resisted the most energetic treatment, yield in a few hours upon the application of a bit of magnetic iron?" It is astonishing that so simple a proceeding has not obtained more favor from the neurologists and also from patients. Returning to his recent work, we observe that the author has considerably modified his ideas, but we do not see that his conception is novel. The antecedent work of Babinski seems to justify its title. He offers a definition of hysteria, which we believe to be new, and, besides, unassailable—a veritable "common measure."

2. *An Account of Psychiatric Clinic of the University of Giessen.*—Sérieux says that the characteristics of the establishment are: Limited number of patients—80 to 100; the relatively considerable proportion of pavilions—8 for 80 to 100 patients; absence of covered galleries, connecting the pavilions. [This is regarded as a most useful change in the original plan, and resulted in a saving of \$38,000.] Differentiation of each pavilion, with special adaptation to each class of patients. Multiplicity and very complete organization of halls of constant surveillance, with installation of baths, wash basins, water closets in the halls; installation of rooms for clinical examination, in proximity to the halls of surveillance; proscription of means of restraint and means of surety, such as walls and grills (grills allowed in pavilions of isolation); employment almost exclusive of alitement (putting to bed); and prolonged baths in access of agitation; no isolation in cells; close connection of halls of continuous surveillance with places occupied by the *agités* (excited patients); lodgment of physicians in proximity to the halls of continuous surveillance (the surveillance and medical assistance should be as near as possible to the patients who have most need of it); very complete telephone installation; electric lighting; central heating, steam at low pressure; distribution of hot and cold water *ad libitum* in each pavilion; abundant place for scientific research and psychological instruction; medical staff and nurses in considerable proportion, 5 physicians for 80 or 100 patients. There are 8 pavilions, 4 on the

east for women and 4 on the west for men. Patients are divided into categories: (1) Quiet boarders, cultivated patients; (2) quiet, with need of constant surveillance; (3) agités (excited patients); (4) subjects of isolation; criminal insane. Between the two groups are the building of administration, of instruction, and cuisine. The professor's villa is of vast proportions, situated at an angle north of the plot. It is so placed conformably to the desiderata of Jacobi, sufficiently withdrawn from the pavilions, but sufficiently near for the professor's professional duties.

The article describes at length the principal building, the several pavilions, the hygienic installations for ventilation, heating, water and light. Furnishing—metallic beds are mentioned, furnished with special contrivances for lowering and raising the head, foot, middle and sides of the mattress, to prevent hollows, which provoke the formation of sores.

The article is continued in the July number, and considers the organization of the medical service, the personnel of surveillance, male and female nurses, including watchman and chief watchman, routine of service, professional instruction of nurses, clinic; polyclinic and statistics.

The article is worthy of careful study and occupies over 30 pages of the *Archives*.

No. 91, July.—This contains also an article on "Delirium and Petit Brightism." By this the author means, mental troubles in connection with a moderate insufficiency of renal function, which insufficiency constitutes the petit brightism.

There is also an article on congenital rachitism, with nanism (dwarfism), in an infant, one of a family of 8, this child being the fourth, being born in 1891, after an interval of 3 years, from the birth of the next older.

The author could find no rational etiological cause for the rachitism. There are 3 illustrations (photographic).

The editor in chief of the *Archives*, Dr. Bourneville, presents an interesting case of a child entered at the age of 3 at the asylum-school of Bicêtre, and affected with profound idiocy, with manism and infantilism. There are 11 photographic illustrations, showing the child at various ages and the last at 15, when he appeared quite normal. He had been taught to read, write, and had unusual memory of what he read. At first he was supposed to be deaf, but was only deficient in the auditive attention.

The author says it is necessary in these cases to apply with regularity and patience medico-pedagogic treatment during several years before declaring complete idiots incurable.

Dr. Bourneville has an "Institute" at Bicêtre for the education of backward and idiotic children.

(Vol. 15, 1903, September.)

1. Obsession and Delirium. MARANDON DE MONTYEL.
2. Obsedant Ideas. S. SOUKHANOFF.
3. Delirium and Nephritis. VIGOROUX and JAQUELIER.
4. Tic. BOURNEVILLE and POULARD.

1. *Obsession and Delirium*.—The author disputes the contention of Magnan that obsession does not evolve and that it never ends in delirium, properly so called. He agrees with Séglas, who reports facts establishing the contrary of Magnan's teaching. Séglas, he says, properly distinguishes two very different orders of facts. A patient may be at the same time an obsédant and déliriant, but by simple coincidence. The author reports two observations and concludes thus: "These two cases, the only ones that I have met, prove, it seems to me, that Séglas is right, and that if the transformation from obsession to delirium and its complication with a crisis of mania or of lypé-mania are rare, they still sometimes manifest themselves."



2. *Study of Special Cases of Manifestations of Obsedant Fears in Persons of Idéo-Obsessive Constitutions.*—In the idéo-obsessive constitution, we may always observe in one and the same individual an exceedingly varied complex of psychic obsedant processus; the obsedant ideas and phobias are never isolated; it is true that some of them may be expressed in a fashion more pronounced than others; sometimes agoraphobia is the prominent symptom; sometimes the delirium of touch; sometimes obsedant reasonings, etc.; but in questioning patients of this kind, one finds always with one or the other of these symptoms, the coexistence of a whole series of the most varied obsedant psychic processus, to which the patient reconciles himself and at times also habituates himself to such a degree that they have no visible influence upon his conduct. The external manifestations of the obsedant psychic processes has been studied to a sufficient extent and many of them have established meanings. In this article, we call attention to certain particular symptoms observed at times in those of idéo-obsessive constitution: (1) *Obsedant ideas of pathologic jealousy.* We very often observe jealousy in men who are subjects of chronic alcoholism; in women pathological jealousy is not rare, as one of the manifestations of hysterical degeneracy and also of senile melancholia, and in men as a symptom of chronic, degenerative paranoia. The author cites a case where a woman was a victim of unfounded fear of conjugal infidelity. (2) *Pathologic fear of cold;* for example, absurd fear lest one's children should be exposed to the cold; keeping them shut up in the house; in dread of fresh air; forbidding them to go out in winter; wrapping them up, so that the air should not reach their lungs; afraid to open windows, even in summer, in dread of a current of air. Another such fear is of watches (time-pieces). This fear is developed by obsedant meditations upon the movements of the planets through infinite space. This fear makes it necessary to stop all clocks in the house. In the case in question, the patient had also a fear of seeing objects modified in form, where they were reflected in something shining, and a fear of seeing a skirt or a gown turned wrong side out. These examples show, says the author, what variation there may be in obsessions in different individuals; individual peculiarities manifest themselves in a manner very pronounced.

3. *Delirium and Petit-brightism.*—This is a continuation of articles in Nos. 91 and 92. The result is that mental troubles and those of renal function have parallel exacerbations and diminutions.

4. *A Case of Tics* (A contribution to the 1902 Congress at Grenoble).—The nervous affection, called by Charcot, malady of tics, is, in general, say the authors, considered incurable. According to most authors, the remissions are merely transient or incomplete.

A young girl, who for ten years past has been a subject of this malady and whose case they had followed since 1890, has just been completely if not definitively cured. The patient was born in Paris, 1888; entered at the Fondation Vallée May 21, 1900. The history of the case given by the authors, includes hereditary and personal antecedents. The first tics were grimaces of the face, projection of the tongue, and finally outcries, such as "He is dead: he is dead," repeated without ceasing during 2 or 3 months.

*Treatment.*—Syrup of the iodide of iron, bromide of camphor, hydrotherapy, gymnastics, school and workshop. 1901, same treatment, besides cod liver oil. The history describes the tics in detail. The authors in conclusion state that hereditary antecedents would account for most of the peculiarities, the antecedents being numerous cases of congestion and apoplexy of the brain, caféism, alcoholism, tuberculosis, and finally the considerable disparity in the ages of the parents, the mother being 12 years older than the father. In spite of her tics, the patient could sing; the couplet finished, the tics reappeared; gymnastic exercises did not interrupt the gesticulations and grimaces. It was not so with the respiratory exer-



long time had recourse at the Medico-Pedagogic Institute, and more recently at Bicêtre, which in many instances have appeared to the authors to have a salutary influence upon the disappearance of tics. "During the first years, there had been only convulsive movements, gesticulations, cries. The *coprolalie* (dung words) had appeared a short time after a visit to the consultation of Salpêtrière. Gilles de la Tourette had demanded if Georgette (the patient) uttered foul words. Upon a negative reply of the mother, he said: "Very well, she will say them." "We mention the fact, without comment." Remissions, incomplete in themselves, were rare. In January, 1901, the cries, exclamations and coarse words had relatively diminished. The tics of motion were less frequent. *Per contra*, in March, 1902, there was a veritable exacerbation. Once a week, in May, Georgette came into the private office, where she remained by our side for two hours. She was put under a sort of suggestion, but in a wide awake state. The tics persisted, though diminished by her efforts to restrain herself. In the course of these séances, she never pronounced coarse words. This was a favorable indication. After these séances, the tics and the coprolalie reappeared, but without exaggeration. At the commencement of June, the tics are more and more infrequent, the movements of the limbs and of the body have disappeared almost suddenly, and 8 days later the tics of the face. In the last 48 hours, the child has undergone a veritable transformation. She went to the home of relatives in Normandy, and has, at the end of December, 1902, had no relapse.

This month contains a long account of the Congress of Alienists and Neurologists at Brussels from Aug. 1 to 8, 1903.

RICHARDS, Amityville.

#### ARCHIVE FUER PSYCHIATRIE UND NERVENKRANKHEITEN

(Vol. 37, 1903, Heft 2.)

1. The Older and More Recent Investigations of the Brain. EDWARD HITZIG.
2. Further Contributions to the Pathology of Sensory Aphasia. A. PICK.
3. Investigation of the Sensory Quality of Vibrations or the so-called Bone Sensibility (Pallesthesia). A. RYDEL and W. SEIFFER.
4. Concerning the Inferior Longitudinal Fasciculus. VON NISSEL-MAGENDORF.
5. Random Contributions to the Knowledge of Aphasia. TH. BONHOEFFER.
6. Remarks on Rare Cases of Transverse Lesion of the Spinal Cord. A Case of the Double Syndrome of Brown-Séquard. F. JOLLY.
7. The Fissuration and Structure of the Cerebral Cortex of Rodents, with particular reference to the Motor Centre and the Visual Area. S. R. HERMANIDES and M. KÖPPEN.
8. Proceedings of the Congress of Neurologists and Alienists of South-western Germany in Baden-Baden, May 23 and 24, 1903.

1. *Investigations of the Brain*.—This continued article under chapter iv. enters upon the discussion of the relation of the canine vision to the cerebral cortex and the sub-cortical ganglia, and considers the character of the cortical lesion inducing the disturbance of vision, whether it be hemianopsic or otherwise. Munk's doctrine receives particular attention.

Historical references and methods of research are given in detail. The experiments beginning with No. 65—the first in the Heft—and ending with No. 76, give the findings of lesions following primary operation, and Nos. 77 to 91, inclusive, give the results of two or more operations in one animal. The ten experiments, from 91 to 100, inclusive, followed atypical operations such as trepanning the skull posteriorly or a removal of the skull in different areas, etc. The effects of lateral lesions are given

in Nos. 101 to 115, and those of medial lesions in Nos. 115 to 120, inclusive. The wealth of illustrations in this number are noteworthy. The article is not finished.

2. *Pathology of Sensory Aphasia*.—Part I. of this article in the previous number considers the question of the peculiar speech defects and the substituted function of the right temporal lobe in sensory aphasia. The patient was a woman 86 years old. Heredity not known, but it was known that she was in good health until one year before admission to the hospital. Then began to have failing memory. The patient presented many symptoms of dementia. She was careless in dress, uncleanly in habits, and at times exposed her person. Hearing on the left was decidedly dull; cataracts were in both eyes, so that on the right the fundus could not be observed; on the left there was very probably homonymous hemianopsia. The general sensibility was not distinctly disturbed, the knee jerks and Achilles-tendon jerks were normal; no Babinski.

The patient had been under observation about fifteen months when death occurred. At the necropsy the following marked abnormalities were noted: The sinuses filled with fresh, dark blood; the pia somewhat thickened and edematous; the brain generally and decidedly atrophic; on the left hemisphere the entire supramarginal convolution, the angular convolution in part and the upper part of the temporal-sphenoidal convolution posteriorly were shrunken and softened, while the cortex surrounding these parts felt somewhat harder than normal.

The meninges over these parts were colored slightly brown. Microscopical examination showed that not only the cortex but also the fibres for a distance of 4 c.m. downward were softened. In the softened area there was contained a milky white fluid. Cross-section through the pons, the medulla and the cerebellum showed nothing pathological. The detailed answers of this patient were of unusual interest.

The second part of the article deals with the diagnosis of the combined cerebral and the peripheral parts necessary to cause interference with the understanding of speech. The patient, a man 74 years old, with good heredity, was in good health until two years before admission to the hospital. Apparently, the attack was sudden in onset, following an assault of which he could give no account owing to the disturbance in speech.

A few days later he replied to questions, but only in the language of the country of his adoption. His actions were demented: he would collect bits of paper and stuff them in his bed; at times was restless; urine and feces were voided unconsciously. The examination of the eyes showed nothing abnormal, excepting a paralysis of the abductors on the left; the hearing was dull on both sides.

The patient remained under observation for about two months, when he died. On necropsy a general shrinking of the convolutions was noted; the pia thickened throughout; but little blood in the sinuses; the superior temporal convolution on the left posteriorly was small and sunken. The cross-section showed old softening in the cortex and lessened fibre substance of the superior temporal convolution on the left and the caudal half of the middle temporal convolution also on the left. Cross-section of the pons, medulla oblongata and spinal cord showed nothing abnormal.

3. *Bony Sensibility*.—Bone sensibility was brought first into notice by Egger, of Paris, who gave it the name. This is regarded as distinct from all other qualities of sensibility. The method employed is the use of a tuning-fork set into vibration and placed upon different parts of the body in turn. The sensations received are thought to be due to the sensibility of the bone.

The authors employ a tuning-fork of their own contrivance. In brief its weight was 100 grams, 23 c.m. in length, vibrated 64 times to the second and attuned to high C. To obviate the possibility of temperature sense

a foot plate of horn is provided. The authors necessarily employ arbitrary figures to record their results, but the records show impairment of the sensibility of bone, in Friedreich's ataxia, for instance, but 5 to 9 as compared with the normal, and for the legs in a case of tabes but 0 to 9. A table is given of the varying sensibility of the bones. From this table it is seen in the mid-forehead is least sensitive and the back of the hand and the sole of the foot most sensitive. The nerve lesions in which the authors have applied their tests, in addition to Friedreich's ataxia and tabes, comprise peripheral lesions, such as palsies and inflammations; in compression myelitis, in multiple sclerosis, in syringomyelia, diffuse myelitis, hematomyelia, tumor of the cervical cord, anterior poliomyelitis, spastic spinal paralysis, cerebro-spinal syphilis, tumor of the brain, hemiplegia and progressive paralysis—60 cases in all. In each case the skin sensibility is given for comparison with that of the so-called bone sensibility. The authors regard this quality of sensation—pallesthesia as they purpose to call it—of considerable clinical importance.

4. *Inferior Longitudinal Fasciculus*.—An anatomical study of the brain of two one-month-old children, two two-months-old children, and an adult after the method of Weigert-Pal. This investigator finds the primary optic fibres are the projective fibres of the occipital lobes—that they originate in the outer corpus geniculum and terminate without exception in the calcarine fissure. Their direction is centripetal. This is the fibre bundle falsely called the inferior longitudinal fasciculus by Flechsig. The formation and discussion of the secondary visual tract are also discussed.

The clear photographs accompanying the article show clearly the points raised by the investigator.

5. *Aphasia*.—To be abstracted when completed.

6. *Transverse Lesion of Spinal Cord*.—This case by Jolly is reported with necropsy. The patient was a woman, aged 42. She was under observation five years. The dissociation of sensation is given in detail with charts. Syphilis was thought to be the cause, but this was absolutely excluded at the necropsy. The photographs of sections at different levels show the normal pia and the marked changes in the cord substance. The cause was thought to be myelitis. An interesting conclusion is that a purely central spinal lesion where the pain tracts are involved may cause pain and paresthesia such as is most frequently seen when the nerve roots are involved.

7. *Cerebral Cortex of Rodents*.—This is a morphological study of the brain in the rabbit, rat, mouse and mole. The studies were made by the Nissl method only. The nine photographs give clear pictures of the authors' findings.

A. F. WITMER (New York).

#### REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(Vol. 7, 1903, Sept.)

1. Cranial Measurements on the Living. BLIN.
2. The Abnormal and Degenerated. ETIENNE RABAUD.
3. Note on the Measure of Tactile Sensibility in Its Relation to Cerebral Work. RAYMOND MENNIER.

1. *Cranial Measurements*.—This article is in the main technical: confined to a description of the technic of taking cranial measurements. The author describes an instrument of his own designing—cranial campylogram—for obtaining a tracing of the several curved outlines of the skull, which is applicable to the living subject. It consists of a metallic arch and vertical arc at right angles to it, both graduated. This is fixed on a framework which is adjusted by two projections into the external auditory canals. On these graduated arcs an indicator is fastened, and at the several graduations the distance to its point resting on the head is determined.



These measurements are transferred to a specially ruled paper and the several points connected to form the outline sought.

2. *The Abnormal and Degenerates.*—The author deplors the wide and ill-defined use of the word degenerate, and notes that as now used it is applied to conditions of the greatest diversity. He would restrict the use of the term to those cases only in which the cells present a disintegration, or at least a tendency to disintegration, under the influence of trivial causes. While to those cases in which there has been an abnormal development quantitatively, or in which normal tissues have developed in an abnormal way, he would apply the term abnormal.

Among the abnormal he would distinguish microcephaly and incomplete microcephaly—idiots savants. In this class would also appear those cases of faulty development characterized by abnormal symptoms during childhood, indications of abnormal associations, and manifesting mental disequilibrium. These cases later become persecuted. [Evidently original paranoia is included here.]

The degenerates, on the other hand, are actually diseased. The mental symptoms are manifestations of mental enfeeblement—inability for sustained attention, lack of fixity of purpose, changing from one occupation to another, great vanity, etc. The degenerate is not insane actually, but potentially; but is liable to become alienated under the influence of alcohol, syphilis, or, more simply, from grief.

Conditions of abnormality and degeneracy may, however, be combined. Upon an abnormal basis degeneracy may manifest itself, and so we have what have been called the superior degenerates—men of superior intelligence, men of genius who become afflicted permanently or temporarily with mental disorders.

3. *Tactile Sensibility.*—The author concludes from experiments conducted on a subject before and after cerebral work that cerebral work diminishes tactile sensibility.

WILLIAM A. WHITE (Washington, D. C.).

#### JOURNAL DE NEUROLOGIE

(1903. Vol. 8, No. 14.)

#### I. Experimental Researches on Motor Spinal Localizations. E. BRISSAUD and A. BAUER.

1. *Motor Spinal Localizations.*—In order to study the motor localizations in the cells of the anterior horn, the authors performed unilateral amputations of the hind limbs of tadpoles at varying periods from the time of their first appearance, until the animals had developed into frogs. The limbs were generally more or less completely reproduced and then re-amputation was done, in some cases as often as three times. After the operation, at different periods running from eight days to 11 months in different cases, the animals were fixed, decalcified, embedded in paraffine, and serial sections colored by hemateine and eosin, by Van Gieson's, and by Nissl's methods, were studied. A diminution in volume of the cord on the side of the amputated limb was almost constantly found, and chromatolysis and atrophy of the cells of the anterior horn was present in very varying degree. The cells in the lumbar enlargement of the frog show a distinct arrangement into a medio-ventral and a lateral group. In amputation of the foot, the alterations affected the part of the cord between its lower end and the upper third of the segment between the tenth and the ninth lumbar roots, the cells of the lateral group being chiefly affected. In amputation of the leg below the knee, the alterations extended from the caudal end of the cord to a little above the ninth root. Up to the tenth root the whole group of cells was altered, above this,

the postero-external and a small part of the antero-external group was affected. In amputation of the thigh the alterations extended to the upper part of the segment between the ninth and eighth roots: All the group was altered up to the middle of the segment between the tenth and ninth roots. Above this sound cells gradually appeared antero-internally, until the degeneration was confined to the postero-external group.

From this it appears that there is segmental localization for the hind limbs in the cord of the frog. The cell groups for the different segments seem to be superimposed, and to have a sort of imbricated arrangement. The article is illustrated.

ALLEN (Trenton).

#### BRAIN

(Vol. 26, 1903, Spring, 'No. 1.)

1. The Autonomic Nervous System. J. N. LANGLEY.
2. The Nerve Cells in Thirty-three Cases of Insanity, with Special Reference to Those of the Spinal Ganglia. JOHN TURNER.
3. Diagnostic Value of the Position of the Head in Cerebellar Disease. F. E. BATTEN.
4. Localization of the Respiratory and Cardiomotor Centre on the Frontal Cortex. J. W. LANGELAAN and D. H. BEYERMAN.
5. Pathology and Bacteriology of Landry's Paralysis. E. F. BUZZARD.
6. Case of Tumor of the Axis, illustrating the Functions of the Third Cervical Spinal Segment. W. THORBURN and JAMES GARDNER.

1. *The Autonomic Nervous System*.—Langley here considers the general plan of the efferent system of nerves which controls the unstriated muscle, the cardiac muscle, and the glandular tissues of mammals. He further points out how far the plan holds for other vertebrates, and he discusses the question of the existence of an afferent system of nerves corresponding to the efferent system. Under the general head of "Efferent Fibres" he says that they constitute an autonomic nervous system. These leave the central nervous system in four regions which are separated from one another by regions from which no efferent autonomic fibres pass. These four regions are: (1) In the mid-brain, with fibres passing to the iris and ciliary muscles; (2) in the bulb below the calamus, from which fibres pass by the seventh nerve and by the glossopharyngeal and vagus nerves. These supply the blood vessels and glands of the mouth, pharynx and nose, the walls of the esophagus, stomach, small and large intestines; (3) the third region is in the spinal cord, and gives origin to the sympathetic efferent fibres; (4) the sacral fibres giving off nerves which supply the walls of the anus, rectum, the walls of the bladder and the genito-urinary organs. With reference to afferent fibres he shows that: (1) The afferent fibres accompanying the efferent autonomic are in part somatic; (2) that afferent autonomic fibres are present in all spinal and most cranial nerves; and (3) that all the posterior root ganglia contain autonomic as well as somatic nerve cells.

2. *Nerve Cells in Insanity*.—This is a careful study made by modern histological methods of the cells of the nervous system in thirty-three cases of insanity. The study is too detailed to permit of adequate summarizing.

3. *The Head, in Cerebellar Disease*.—As a result of the author's investigations, he comes to the following summary: (1) A definite attitude of the head is not infrequently seen in cases of cerebellar disease in man, that position being with the ear approximated to the shoulder on the side opposite to the lesion, and with the face turned up to the side of the lesion; (2) this position of the head, so far as the approximation of

the ear to the shoulder is concerned, is the reverse, while the position of the face is the same as that seen after experimental ablation of one lobe of the cerebellum. To answer the second portion of the question, viz., can the sign be used as a symptom of diagnostic value? in the bare affirmation might lead to error, for the relative value of this symptom in comparison with the other symptoms of a cerebellar lesion, is a question which needs most careful consideration in each individual case. It is probably a symptom of less importance than in coordination or weakness; (3) the fact that the position is sometimes present in cases in which there is no gross lesion of the cerebellum is a further reason for not attaching too great importance to the position assumed by the head. In conclusion, it may be said that as an additional and confirmatory sign of cerebellar tumor, the position assumed by the head is of value, but too much importance should not be attached to its presence alone, or when opposed to symptoms which have been shown to possess greater diagnostic value.

4. *Respiratory Centre and Heart Centre in the Frontal Lobe.* (See abstract from *Psychiatrische Bladen* elsewhere.)

5. *Landry's Paralysis.*—The author makes a complete study of the pathological and bacteriological features in a case of Landry's paralysis, the anatomical features of which cannot be adequately summarized. He was able to isolate a micrococcus from the blood, which micrococcus was found in large numbers in the external part of a spinal dura of the same patient. The injection of the cultivated organism into a rabbit produced a rapidly spreading palsy, and the changes in the nervous system in both the patient and the rabbit were of the kind produced by toxins.

6. *Tumor of the Axis.*—A report in detail of a sarcoma in the body of the axis growing very slowly over a period of four years, which compressed the cord on the left side between the second and third cervical vertebræ. The motor symptoms consisted in paralysis, with marked wasting of the left sterno-mastoid and trapezius and an affection of the left eye, due to destruction of the left motor nuclei. The left phrenic nerve was completely paralyzed. The full details of the areas of anesthesia should be consulted in the original.

JELLIFFE.

#### PSYCHOLOGISCHE EN NEUROLOGISCHE BLADEN

(March-April, 1903.)

1. Pathological-Anatomical Researches about the Gyrus Hippocampi, Cornu Ammonis and Gyrus Dentatus, principally in Insania Epileptica. J. P. HULST.

2. A Medico-Legal Examination. A. COUVEE and C. WINKLER.

1. *Pathological-Anatomical Researches about the Gyrus Hippocampi, Cornu Ammonis and Gyrus Dentatus.*—The author gives a report about the extensive literature of the subject. Bouchet et Gazauvieilh published in 1825 some cases, in which was found induration of the gyrus hippocampi together with hyperemia. They found, however, similar changes in other than in epileptical psychoses. Since that time a great many other (Bergman, Hoffmann, Meinert, Sommer, Pfleger and Worcester) published cases with alleged abnormalities in the pyramidal cells of the cornu ammonis. Some authors found similar changes even in 50 per cent. of the epileptics. Lastly have Robertson and Binswanger examined a number of cases and did not come to a positive result. Equally Gowers did not attribute any great value to the changes of the hippocampus in epilepsy. The author examined in 17 cases very carefully the different layers of ganglion cells of these structures. Very limited descriptions of the cases which the author gives do not sufficiently warrant the diagnosis, it appears. The weight of the brains amounted from 915 to 1505; the heaviest brains belonged to epileptics. Careful countings were made about the



number of ganglion cells in 6 different layers of the top and the base of the cortex as well of the gyrus dentatus as the hippocampus; especially epilepsy caused this.

Symmetry is very rare in the details of the hippocampus. (It would be worth attention to verify whether in the asymmetrical cases the predominance of the disturbances of motion and sensibility of one side might correspond with the side in which anatomically most changes were found. Ref.)

In the 17 cases 3 times was found a defect in the multipolar and pyramidal ganglion cells; of these three, two in insania epileptics and one in juvenile dementia; in the last case it was not sure that fits have occurred. The author cannot agree with Bratz in that B. found regularly the defective development in the entire cornu ammonis up to the uncus. He concludes that degeneration of the ganglia cells in the cornu ammonis is not a monopoly of epilepsy, but that also in other psychoses these peculiar abnormalities are found.

2. *A Medico-Legal Examination.*—A case of exhibitionisme in which the authors believe there was a defective development of intellect and deny the responsibility of the person in question for his act, it being the result of an abnormal sexual impulsions which could not be resisted.

MUSKENS (Hague).

#### MONATSSCHRIFT FÜR PSYCHIATRIE UND NEUROLOGIE

(Vol. 14, 1903, No. 2, August.)

1. A Case of Erb's Plexus Paralysis, with Involvement of the Phrenicus and Sympathetic on the Same Side. U. ROSE.
2. Ecnoic Conditions. H. BREUKINK.
3. Paraldehyde Delirium, and the Effects of Paraldehyde, with Remarks upon Other Hypnotics. M. Probst.
4. The Clinical Nature and Pathogenesis of Certain Forms of Psychoses of Anxiety. E. STRANSKY.
5. The Pathology of Paralysis of the Peroneus. S. DANS.
6. Report of the Eighteenth Meeting of the Southwest German Neurologists and Alienists on the 23rd and 24th of May, 1903, in Baden-Baden. R. LAUDENHEIMER.

1. *Erb's Paralysis.*—A workman, thirty-two years of age, fell while intoxicated, striking the left arm and left side of the face. He fell asleep where he had fallen, and immediately after waking noticed weakness in the left arm. This increased, but did not involve the hand. The left eye was smaller and there was paralysis of the left vocal cord. Finally there was no power of movement in the shoulder or elbow joint, but good movement of the hands. Sensation was normal, with the exception of a doubtful area of hypesthesia on the radial side of the arm. Later the patient developed paresthesia in the left arm, and an investigation with the Röntgen ray showed that the left side of the diaphragm did not move during respiration. The pupil remain contracted, but there was slight return of power in the arm. This rapidly improved and the patient gradually recovered power, although the movement of the diaphragm on the left side remained limited. The case represents characteristic Erb's paralysis, and in addition paralysis of the phrenic nerve on the left side and of the left sympathetic. The result was favorable, and on account of the absence of the reaction of degeneration the prognosis had always been good. The paralysis was probably brought about by hyperextension of the left arm during the drunken sleep, giving rise to compression of the plexus between the collar bone and the transverse processes of the fifth and seventh cervical vertebræ. It is also possible that as the patient

fell upon a heap of stones, one of these may have pressed upon the fourth, fifth and sixth cervical nerves and also upon the sympathetic nerves. The possibility of a rheumatic paralysis secondary to chilling seems unlikely.

2. *Ecnoic Conditions*.—Breukink reports the case of a man seventy years old, who during military service was struck upon the heart with a pistol, rendered unconscious, and had subsequently some slight symptoms of cerebral disturbance. He had used alcohol to excess. At the age of fifty years he became at first depressed and then extremely excited over religious subjects. He recovered in an insane asylum, and twenty years later, when worried about his wife, who was sick with influenza, he again became excited about religious subjects. He seemed to understand where he was, and to realize that his mind was affected, but exhibited extreme excitement, often shouting, and his speech was slight scansion. Breukink discusses the differential diagnosis, considering senile dementia, hysterical psychosis, mania, acute hallucinatory paranoia, and finally the condition described by French authors as "exaltation cérébrale," or as "delirium of the degenerates." The second case, a man of thirty-two, without neuropathic heredity, who in his boyhood had been obliged to work very hard, had at times shown religious exaltation. He became engaged to be married, but heard voices warning him against his fiancée. After marriage he became very suspicious of his wife, and finally fled to Holland, where he worried a great deal over his wickedness. He finally became excited, had hallucinations and was transferred to the insane asylum. Under the influence of opium the patient became more quiet, but still had hallucinations, although his intelligence was normal. The symptoms were those of emotional excitement. Both of these cases correspond to the ecnoic state of Ziehen.

3. *Paraldehyde Delirium*.—Probst, after a careful analysis of the literature, which shows how diverse are the opinions of different authors on the subject, reports the case of a woman of thirty-eight who for many years had had the paraldehyde habit, taking the drug not merely as a hypnotic, but also during the day to quiet the nervous system. Finally she was brought to the hospital in a state of stupor, with a history that she had taken 150 gm. of paraldehyde in the course of thirty-six hours. This had not produced sleep, but she was extremely anxious, groaned continually, and threatened suicide. Speech was affected and she was not able to sit up. She had constant vomiting; the expiration had a strong odor of paraldehyde, and there was a slight subnormal temperature. On the second and third days there was profuse perspiration and polyuria. Acetone in considerable quantities was present in the urine. On the fifth day there were muscular twitchings in the tongue and extremities, and hallucinations of sight and smell. On the sixth day she began to improve and soon recovered completely. Probst, however, has seen other cases in which larger doses of paraldehyde (50 and 60 gm.) were taken without injurious effects, and he believes that pure paraldehyde is the least dangerous of all the hypnotics. Sulphonal, if its use is continued too long, produces poisonous effects. He mentions the case of a woman who for several years had taken considerable doses at intervals. The symptoms were staggering gait, stupor, slow speech, nausea and weakness.

4. *Psychoses of Anxiety*.—Stransky reports some curious cases. A man of thirty-three years had articular rheumatism followed by mitral insufficiency and loss of compensation. After that he frequently had paroxysmal attacks of cardiac failure occasionally associated with anginoid symptoms. Later a condition of anxiety became persistent and it was necessary to confine him in an asylum. The depressed, anxious state was always more severe when the failure of compensation was pronounced. The second case, a woman of forty-four years, passed through practically the same course. He regards this anxious state as a complex perception which may

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be produced by a variety of conditions, among which precordial angina is one of the most important. Of course the increased excitement of the sensory heart nerves produced by the cardiac lesion are predisposing, and not direct causes of the condition. He draws a sharp distinction between the pain felt in the precordium, and the state of fear or anxiety that occurs in angina pectoris.

5. *Peroneus Paralysis*.—Dans continues his discussion of peroneal paralysis, discussing tabes, dementia paralytica and progressive muscular atrophy. He mentions also the forms that occur in senile sclerosis, and describes a case that he observed in a man seventy-eight years of age. There were no reactions of degeneration, and in the course of five months considerable improvement occurred. The paper concludes with an anatomical classification of various forms of paralysis. Nearly 300 classified references are appended to the article.

6. *Society Proceedings*.—The following are the papers read at the 18th meeting of the Southwest German Neurologists and Alienists. "Spastic Spinal Paralysis, and the Reasons for Accepting Its Existence," by Erb. "The Anatomical Foundation of Syphilitic Spinal Paralysis," Erb. "An Epidemic of Syphilis 12 Years Ago, and the Results that Can Be Determined Today," Brosius. "Relapsing Papillitis in Cerebral Tumors," Axenfeld. "Atrophy of the Optic Nerve and Disturbance of Menstruation in Tumors of the Brain," Axenfeld. "The Prognosis of Progressive Paralysis," Gaupp. "Galloping Paralysis," Weber.

J. SAILER (Philadelphia).

#### MISCELLANY

SYRINGAL HEMORRHAGE IN THE SPINAL CORD. Sir William Gowers (Lancet, Oct. 10, 1903).

The etiology and the symptoms of this interesting but happily rare condition, is presented by Sir William and several of his most interesting cases cited. Perhaps the most characteristic sign presented is the pain, which is described as being so severe that it makes the patient shriek with agony, the legs feeling as if they were being broken across. The bulk of the pain, however, is locally over the spine, the referred pain being entirely secondary as regards degree. Such pain as this does not occur in simple myelitis. If the blood escapes into a cavity of considerable vertical extent, there is not much erosion of the cord at the seat of the hemorrhage until the cavity is filled. It is probable that the cavities into which these hemorrhages take place, may be in many cases regarded as congenital. Some authorities, however, differ from this. It is easy to understand how hemorrhage may readily occur into these preëxisting cavities. They are irregular in position and in size, and therefore in their relation to the vessels. The adjacent gliomatous tissue which surrounds them seems to be readily broken down by the fluid they contain. Adjacent vessels are imperfectly supported and may easily give way. Furthermore this gliomatous tissue is extremely vascular and may be a source for the hemorrhage, without any reference to the larger vessels. The symptoms, therefore, will vary rather directly as the congenital spaces of the cord are greater or smaller and are surrounded by a more or less vascular area. Inasmuch as these spaces are distributed along the posterior cornua, it must be remembered that if distended by blood, they may compress the lateral columns. And if it extends forward to the central region, it may compress the anterior horn. To differentiate the condition from a cerebral lesion, it is important to note that the latter never causes complete paralysis of the arm without any affection of the face or leg. The sternomastoid is weakened on the side opposite to the paralyzed arm, not on the same side. The most important therapeutic point is to give absolute rest in every case of sudden spinal



palsy. This is especially important when pain suggests a hemorrhagic cause. Every effort should be made to reduce the blood pressure in the spinal cord. To this end the spine should not be the lowest part. Therefore, the posture of the patient is of great importance. In all cases where there has been an escape of blood, the influence of gravitation for good or evil is too often overlooked. Hence, in the case under consideration, the prone position should be maintained, or, if possible, the patient should be placed in a sitting position. Posture is of the utmost importance in the treatment of all acute affections of the spinal cord.

JELLIFFE.

MECHANISM OF THE PAROXYSMAL NEUROSES. Francis Hare (Australasian Medical Gazette, Oct., 1903).

The author states the close relationship observed between the different members of the class of paroxysmal neuroses, and argues the occurrence of attacks as essentially due to widespread vaso-constriction, more or less compensated by a localized area of vasodilation or cardiac modification. In proportion to the inadequacy of compensation, so is the rise in blood pressure, etc. Amyl nitrite is suggested as a remedy.

J. E. CLARKE (New York).

CHRONIC SPINAL RIGIDITY. E. Barg (Zeitsch. f. klin. Med. Vol. 50, Nos. 3 and 4).

Rheumatic influences and trauma are generally held accountable for Bechterew's type of chronic spinal ankylosis and intoxications and infections, such as alcoholism, gonorrhea and syphilis for the Marie-Strümpell form. The pathological process is not uniform owing to the various structures which enter into the formation of the spine; thus a rigidity may follow inflammation of the vertebræ, ossification of the intervertebral disks or the ligaments, or myositis ossificans, muscular rheumatism or spastic contractions of the muscles of the back. Sometimes all structures are involved, and then it is difficult to say where the process began. Then the case is interesting only pathologically, but where the muscles alone are affected, much good can be done by treatment. The author advises that special attention should be paid to the muscles in all cases. The early diagnosis should be assisted by means of the X-rays and examination in narcosis, for delay will only permit the process to extend to the joints. Often there is a history of trauma and soon after the patients complain of stiffness in neck and back and pains in the head and back, of increasing severity. The stiffness persists, prevents the patients from working and robs them of sleep. Flexion and extension of the spine are absolutely impossible and on percussing the muscles, they are at once thrown into a spastic contraction. The walk is slow and very cautious, since the patients avoid straining the spine in every possible way. When told to lie flat upon the abdomen they generally support the body and extended legs upon the stiffly extended arms and gradually lower themselves by cautious flexion at the elbows. Sometimes the arms cannot be extended beyond the horizontal, but the hips, knees and elbows are generally movable in all directions. Under chloroform complete relaxation of the spine takes place. The treatment consists in the administration of iodides and bromides, massage, warm baths, active and passive motion and galvanism. Kyphoses, so common in the osseous form, have never been described. It is possible that the stiffness and pain are caused by a hemorrhage into the subarachnoidal space, with subsequent pressure upon the emerging nerves, since occasionally altered blood is found in the fluids obtained on lumbar puncture.

JELLIFFE.

**HYSTERIA.** W. B. Young (Medical News, Dec. 12, 1903).

The author states that we must look to the unconscious impressions of infancy and children for the etiology of hysteria. (2) The disease primarily is purely a psychosis. (3) The pathology, he believes, will be located in the adrenal system. (4) The treatment for hysteria *per se* should be psychical. Suitable resorts should be erected for properly treating and caring for the afflicted among the poor. NOYES.

**NERVE FIBER REGENERATION.** J. N. Langley and H. K. Anderson (Jour. Physiol., Vol. 29, No. 1).

Under certain experimental precautions, Langley and Anderson found that in the sciatic and crural nerves, medullated fibers do not regenerate in the peripheral end of a cut nerve in 124 days. But medullated fibers may regenerate in the peripheral end without any connection being formed with the central stump; when such regeneration takes place the fibers degenerate on section of the nerves which run to the tissue surrounding the peripheral stump; i. e., the regeneration which occurs in apparent independence of the central nervous system is not really independent of it. When the peripheral ends of two sensory motor nerves are joined, no contraction occurs in the muscles supplied by one of them when the other nerve is stimulated, but when the muscular branch of the crural nerve is cut, and allowed an opportunity of growing both into its own peripheral end, and into the peripheral end of the internal saphenous nerve, stimulation of the saphenous nerve may cause a reflex contraction in the muscles supplied by the muscular branch of the crural; this is still obtained after section of the crural close to the vertebra, so that it is to be considered as an axon reflex occurring in branching fibers which have grown down from the central end. When the central ends of two nerves are joined together, it is not found that stimulation of one gives a reflex by impulses passing up the other to the central nervous system; i. e., apparently, union does not take place between the fibers, and neither nerve grows into the other. If a nerve is cut in a newly born animal, the nerve grows in length with the growth of the animal, although no union is formed between the peripheral and central ends. JELLIFFE.

**ANTISYPHILITIC TREATMENT IN TABES.** M. Faure (Journ. de Med. de Bordeaux, Aug. 16, 1903).

Amelioration or cure of tabes by mercurial treatment has not often been reported of late, says M. Faure. On the other hand, it is well known that 60 per cent. of tabetic cases show a tendency to spontaneous arrest or regression. Investigation shows that the symptoms for which improvement is claimed through mercurial treatment are pain—which is variable and transitory—and incoordination, which has apparently been improved by many other therapeutic measures. The author states that the figures shown by Belugu and Gros in 2,500 cases demonstrate that there is a lower percentage of improvements and cures among those who have received antisiphilitic treatment than among those who have received no treatment; and finally, the number in whom the disease is aggravated by antisiphilitic treatment is greater than the number of those improved by that treatment. However, since improvement is seen in a certain proportion of cases from the use of mercury, the author holds that its effect should be tested; but the remedy should be withdrawn if it appear to exert an unfavorable, instead of a favorable influence. JELLIFFE.

**MUSCLE TONUS AND TENDON PHENOMENA.** Joseph Fraenkel and Joseph Collins (Medical Record, Dec. 12, 1903).

The conclusions of the writers are as follows: (1) Disease of the posterior columns causes hypotonia and decrease of reflexes. When these con-

ditions are present, the tendon phenomena are absent or diminished unless additional disease of the descending tracts counterbalance this influence. (Return of knee-jerks in tabes after hemiplegic attacks.) (2) That disease of the pyramidal tracts causes hypertonia and increase of reflexes. The tendon-jerks under such conditions are increased unless additional disease of the ascending tracts, anterior horns, or peripheral neurones neutralizes this influence. (3) Histological hyper- and hypotonia modify above-stated relations to a slight degree when the disease has not advanced to its full clinical representation. (4) We find in our lists a large group of more or less normotonic registration with approximately normal behavior of the tendon phenomena. (5) We find a smaller group of more or less marked hypotonic registrations. In this group the tendon phenomena are mostly demonstrated. This diminution is evidenced by the fact that the tendon-jerks are not easily elicited, that the muscular contraction is sluggish and vermicular, and is easily exhausted. This behavior of tendon phenomena is not influenced by reinforcement.

NOYES.

VASOMOTOR RIGHT-HANDED AND LEFT-HANDEDNESS. E. Cavani (Arch. Ital. de Biol., June 10, 1903).

Whether this condition exists or not is answered in the affirmative by the author. In an examination of a large number of right-handed and left-handed individuals, he finds a vasomotor reaction more intense and more rapid on one side of the body than on the other. Generally the conditions more favorable to the vasomotor reaction are found on the side of the body more able to put forth the greater muscular effort. The difference in time between the reactions on both sides of the body may amount to one second. Very probably, the vasomotor asymmetry is to be ascribed to the greater permeability or conductivity of the nervous routes in the extremities which have been more freely exercised, without excluding the possibility of the influence of the varying degrees of sensorial excitability in the two halves of the body or the corresponding halves of the brain.

JELLIFFE.

IDIOPATHIC CONTRACTURE. J. Vershubsky (Prakt. Vrach., 1903, No. 27).

The author describes the symptoms of a patient who had been suffering for three months with clonic, lightning-like convulsions that would occur 25 to 50 times per minute. They began by an abnormal movement of the right shoulder joint, whereby the scapula rotates somewhat around its horizontal axis, and the joint is slightly raised, while the head is turned back and the chin to the side. This was followed by a maximum pronation of the forearm and the close approximation of same to the trunk. The hand then dropped down to the sexual organs or continued its motions toward the left axillary region, and was then drawn forcibly (by the patient) backward and downward. This cycle of movements, which was extremely painful and rendered the patient very miserable, ceased only during the sufferer's sleep. Apart from great physical exertion Vershubsky failed to discover anything in the patient's past history that would give him a clue to the etiology of the condition. He was compelled to exclude, through the absence of the necessary factors, toxic influence, psychic states frequently characterized by localized convulsions, such as cortical epilepsy, and others; organic disease of the nervous system, as, for instance, tumor of the brain, was excluded by the absence of any other symptoms, etc. Of the functional nervous disorders, the affection did not resemble hysteria, epilepsy, chorea, paralysis agitans, or any of the tics. The only similar disease which could be supposed in this case would be paramyoclonus multiplex; but in this the muscular contractions do not embrace whole groups of muscles, and, moreover, the muscles affected are usually symmetrically disposed, which was not the case in the patient under observation. It thus remained for the author to designate the case as one of idiopathic contractions. As regards the



treatment of the condition, it is of interest to observe that neither drugs nor psychic therapy seemed to produce any effect. Not even hypodermic injections of duboisine sulphate, of marked utility in many similar conditions, were of any avail here. It was then decided to place the patient in the hospital with the possible view of operating, when in the course of a few days amelioration showed itself, and in about two weeks patient was discharged considerably improved. However, as the improvement did not last long, and the patient insisting on something being done to relieve him, operative interference was finally decided upon. The operation consisted in the separation of the tendons of the various muscles involved in the convulsive seizures. The convulsions ceased entirely during the first three days after the operation, but later on the contractions were renewed, though not with the former severity.

ROVINSKY.

THE DAILY RHYTHM OF EPILEPSY AND ITS INTERPRETATION. S. Pierce Clark (Medical News, July 18, 1903).

The study of the rhythm in the course of disease-processes is interesting and instructive, notably so in the chronic convulsive disorders without definite pathological basis. Such studies are not solely of scientific value in solving the pathogenesis of such diseases as paralysis agitans, myoclonus, epilepsy and kindred cerebral disorders, but is of definite therapeutic value. This particularly holds good of epilepsy. Clark has reviewed this whole subject and contributed statistical studies from the Craig Colony for Epileptics. His ultimate data comprise a collection of one hundred and fifty thousand epileptic seizures tabulated by their hourly occurrence. The component tables and the ultimate compilation are here reproduced. He finds that "there is a more or less definite daily rhythm in the epilepsies in the evening, noontime, and in the early morning, which roughly divide the 24 hours of the day into eight-hour periods; there are also smaller or secondary rhythms." He interprets the occurrence of this rhythm in epilepsy upon "the basis of cerebral fatigue and the accumulation of waste products at these periods which produce the autointoxication and which in turn exhibits itself in seizures during light sleep and during the day when the loss of cerebral inhibition is greatest. Secondary and contributing factors are manner of living, diet, exercise, occupation, sedatives and the character of the epilepsy." The secondary causes are not primary in importance as the tables comprising the group collections in which the former were modified materially without materially altering the main curves of the rhythm. A point of considerable practical importance is brought out in the study, that epileptics rarely meet with serious accident while actively employed, or at least not until such work becomes automatic in character; work therefore for such patients should be simple, but not monotonous, a principle in operation in the diversified types of industries in the colony farms in many states.

E. H. WILLIAMS.

LANDRY'S PARALYSIS. D. Rolly (Münchener med. Woch., Aug. 4, 1903).

This rare and interesting condition was carefully studied by the author who had occasion to observe seven cases. The disease began in all with certain prodromal signs, among which a feeling of lassitude was most complained of. In a short time, paresis of the legs became pronounced and the process then extended upward to the trunk, arms and neck. In two cases the facial nerve was involved and in two the muscles of respiration. There generally is no fever during the onset or at most only a slight rise of temperature and pain does not form a prominent sign at first. Throughout the course the reflexes are absent or much diminished and reaction of degeneration will appear eventually. Ataxia is occasionally present, muscular atrophy appears late and the functions of bladder and rectum are generally normal. No new facts could be ascertained as to etiology, like in so many cases previously published, no cause for this serious illness could be

found in some, while in others there was the usual history of alcoholism, syphilis and overexertion. The author looks upon the disease as an acute, ascending neuritis and believes that if the finer nerve-endings in the muscles were to be examined with modern methods, change would always be found. The process has a tendency to creep up along the nerve-trunks into the cord, but lesions are found here only if the disease runs a more chronic course. It is often hard to differentiate from acute polyneuritis, but here some muscles of each extremity generally escape and the upward extension of the paralysis may be interrupted by days and even weeks of apparent quiescence. The two conditions really belong to one and the same class.

JELLIFFE.

TUMORS OF THE PONTO-MEDULLO-CEREBELLAR SPACE. Joseph Fraenkel and J. Ramsey Hunt (Medical Record, Dec. 26, 1903).

The writers discuss under this title a group of cases characterized by a local or regional neurofibromatosis. This consists in the formation of tumors (single or multiple) on one or more cranial nerves. The acoustic nerve is most frequently thus affected, and next in order the trigeminus. The pathological occurrences on the cranial nerves are identical with those of generalized neurofibromatosis of the cerebrospinal and sympathetic nerves. The two types are not infrequently found associated. Five cases are reported by the writers, with autopsies. Three were tumors of the acoustic nerve; one a case of bilateral tumor of the acoustic; one a tumor of the trigeminus. The underlying causative factor is a teratological one. Traumatism is unimportant as a factor. The neurofibromatous development of the other cranial nerves in previous reports is extra-dural, and usually associated with generalized neurofibromatosis. When the acoustic is affected, the growths are of a rounded form, varying in size from a cherry to a hen's egg, of fibrous consistency, and distinctly encapsulated. The surface is nodular and irregular. Usually there is some attachment to an atrophic nerve trunk, and is not closely associated with the adjacent structures. Sometimes the growth diffuses itself along the acoustic nerve, penetrating the internal auditory meatus.

This group of tumors develops symptoms somewhat different from intra-cranial growths, and shows early symptoms referable to a single cranial nerve, with a long interval before other symptoms occur.

Tinnitus aurium with progressive diminution of hearing; Menière's syndrome (aural vertigo) or obstinate and atypical facial neuralgia are common symptoms.

As the tumor increases, the neighboring parts, pons, cerebellum, medulla and basal nerves show evidences of pressure: Peduncular ataxia, tendency to deviate or fall to the same or opposite side, cerebellar ataxia, nystagmus, irregularities in size and reaction of pupils; paralysis of associated movements of the eyeballs, dysarthria, paralyzes of the extremities, facial or abducens nerves, motor disturbances of the palate or tongue, circulatory, respiratory, vasomotor phenomena. Owing to the proximity of vital centers these tumors share the fatal prognosis with other severe lesions of this locality.

NOYES.

UROTROPIN IN THE PYURIA OF TABES. W. Overend (Lancet, Oct. 10, 1903).

Dr. Overend reports the history of a patient, 36 years, who exhibited classical symptoms of tabes: pains, loss of knee jerk, incoordination and vesical trouble. The urine commenced to dribble and he later suffered from complete incontinence. This was succeeded by a condition of pyuria and the vesical weakness brought about a wretched, morbid and depressed state of mind. Urotropin, 8 grains daily, was given, which finally brought about a correction so that he was able to hold his urine and it became free from pus and albumin and returned to its normal acid condition.

JELLIFFE.



ALCOHOLIC DELIRIUM. S. Soukhanoff and I. N. Vedensky (Roussky Vrach, 1903, No. 28).

It is necessary to distinguish this delirium from the acute alcoholic psychoses on the one hand, and from chronic alcoholic paranoia on the other. Protracted alcoholic delirium, according to the authors, is observed in persons who have been addicted to alcohol for a very long time, and who have formerly undergone several attacks of delirium tremens. The first symptoms are those of auditory hallucinations and illusions; he hears "voices" which are accompanied by noises in the head and ears; the patient fully appreciates his condition, and is even able to refer to it in somewhat doubtful manner. These auditory hallucinations are of a variable degree of intensity and form. He is cursed for his alcoholic excesses, or he hears some one defending him from maligning enemies; or the hallucinations are of an intensely blasphemous character, etc. In severe cases the patient gradually loses the appreciation of surrounding conditions, and therefore asserts the stronger his belief in the reality of the hallucinations. However, notwithstanding the prolonged character of the affection there is usually no marked inhibition of mental powers, and the "voices" gradually lose their significance. The majority of such patients are thus able to keep out of asylums, and even attend to their ordinary occupations, except, of course, such of them as are prevented by the "voices." A great many of the patients become total abstainers after certain threatening symptoms. Chronic alcoholic paranoia is distinguished from protracted alcoholic delirium by the fact that in the former there is a definite persecution mania, which is often manifested in violent outbreaks. As contrasted with the alcoholic's good-nature the paranoiac is suspicious, quarrelsome and often dangerous. The course of the disease in paranoia is progressive, while under favorable circumstances the alcoholic rapidly improves, and is soon convalescing. Psychically the paranoiac may soon become demented, and, of course, disabled from attending to any kind of work, while the alcoholic's mentality suffers but little. In alcoholic melancholia, which may sometimes be confounded with protracted alcoholic delirium in its early manifestations, there is a condition of depression and despair; the patient is frightened, morose; he suffers from threatening auditory hallucinations of a terrifying nature; he seeks isolation, is unwilling to converse with anybody, etc. Of the cases observed (out of 4,813 insane patients there were 33 with protracted alcoholic delirium) 30 were men and 3 women. Twenty were tainted with alcoholic heredity, 3 by nervous and mental affections of relatives, and in general the hereditary influences could be traced in 96.55 per cent. of the cases. The very great majority—fully 88 per cent.—belonged to the illiterate class of the community, including, among others, agricultural laborers, factory workers, etc. ROVINSKY.

PATHOGENESIS IN ACUTE PSYCHOSES. H. Berger (Berliner klin. Woch., July 27, 1903).

This question has remained one of the unsolved problems of psychiatry and none of the numerous theories advanced have stood the test of experimental trials. The view which has lately met with the most support is that these phenomena depend on delicate chemical changes in the cortical cells, which occur without the production of any morphological alterations in the cells themselves. In this way the theory of a circulating toxin in the blood has gradually gained credence. Experimental proof of this theory has been sought by Berger. The first of these trials were performed by the author on himself. He injected at intervals serum, blood and cerebrospinal fluid from a patient suffering from acute dementia with hallucinations without the least effect. This seems to show that the toxin, if present, must already be firmly united with the cerebral cells before the acute symptoms appear. In the belief that the toxin may have been found



during the prodromal stage, the author also injected subcutaneously blood from a patient who was developing symptoms during her puerperium, which later turned out to be a dementia præcox. No effect was seen, but blood was taken from the same patient four weeks later, during a fresh attack, and injected, was shortly followed by vertigo, and later by cardiac palpitation, cerebral pressure, and a marked feeling of fear. All these symptoms subsided on the following day. A similar experiment with the blood taken from a more advanced case in a condition of stupor at the time, was also followed by results which were much more marked and severe and did not subside for a week. The experiments were then continued on animals and a basis secured for further investigation in regard to the changes which specific toxins contained in the circulating blood may cause in the central nervous system. The details are not suitable for a brief abstract. They consist mainly of observations made with the serum secured from the goat which had been made neurotoxic for dogs, by the continued subcutaneous injection of triturated cerebrum from the brains of dogs. Intracerebral injections of this goat serum in dogs was followed by well-marked pathological changes in the pyramidal cells of the cerebral cortex and later on a large aggregation of leucocytes, around these degenerated cells. Similar pathological conditions have been found in patients afflicted with acute psychoses and also in other cerebral diseases, but the author is not as yet prepared to draw final conclusions until further proof has been secured.

JELLIFFE.

BEST METHODS OF COUNTERACTING PSYCHOSES DUE TO THE STRAIN AND STRESS INCIDENT TO OUR PUBLIC SCHOOL METHODS. William J. Herdman (*Journal Am. Med. Ass'n*, Nov. 14, 1902).

Among the physical defects noted by physicians among school children are abnormalities of the special senses; chiefly those of sight and hearing. Examination of the eyes in the high schools of Europe shows that over 40 per cent. were near-sighted to a greater or less degree. Eye strain is one of the quickest and surest ways for bringing about brain exhaustion and mental fatigue. Many children with visual defects are unable to bear the strain of ordinary school requirements, without developing neurasthenia, hysteria, or some form of mental instability.

Disorders of menstruation and an unhealthful state of the generative organs are a frequent cause of reduction of nerve energy. These conditions are more directly the cause of neuroses and psychoses than the school curriculum. Periods of study too prolonged, and a disregard to the vital waves of alertness and acquisitive capacity are faults justly charged to school methods.

The writer advises: (1) A careful medical inspection of schools; (2) that all teachers should be well instructed in physiology and psychology of the child; (3) school buildings should be better constructed with reference to modern school hygiene; (4) the curriculum should be more flexible, to allow more variation of the course of study for the individual needs of the child.

NOYES.

TYPHOID PARALYSIS. S. Ceraulo and G. Granozzi (*Gazz. Siciliana de Med.*, July 2, 9, 1903).

Of the forms of paralysis depending upon typhoid infection, monoplegia is most frequently seen, hemiplegia and paraplegia being of rare occurrence. The appearance of paralysis seems to bear no relation to the gravity of the disease; this complication sometimes occurring in the lightest cases, while the most severe may run their course without any form of paralysis. Monoplegia is usually preceded by a sense of numbness, weakness and coldness followed by pain, which may be very severe and persist after the paralysis has subsided. The latter may last from a week to several months and is accompanied by abolition or diminution of tendon

reflexes and sensibility. Hemiplegia may appear in the course of the disease, but usually appears during convalescence; and its onset is generally sudden. Paraplegia also makes its appearance, as a rule, during convalescence. In a few cases paralysis may extend to the pons and give rise to the symptoms of Duchenne's subacute general paralysis; in others, one of the cranial nerves may be involved; and in one instance, paralysis of one of the abductors of the vocal cords necessitated tracheotomy. Lastly, disturbances of speech may occur in the course of the disease or during convalescence; and children are especially prone to aphasia. As to the pathogenesis, a toxic neuritis or lesion of one of the nerve-centers is generally responsible for the monoplegias. Not so, however, with the hemiplegias, which may be ascribed to thrombosis or embolism of the sylvian artery or else to hemorrhage. Paraplegia is, for the most part, due to polyneuritis or to a medullary lesion. The transitory aphasias of children—generally of toxic origin—are to be distinguished from those of adults, which are often associated with obliterating endarteritis of the Sylvian artery, embolism or thrombosis. The prognosis is good in most cases of typhoid paralysis. Intoxication being directly or indirectly responsible for such affections, elimination of the toxins should be promoted by free diuresis and other measures. Tonic treatment, massage, baths and electricity all contribute their quota toward the cure of typhoid paralysis.

FIELDING.

TWO CASES OF TRANSCORTICAL SENSORY APHASIA CAUSED BY A TUMOR OF THE LEFT TEMPORAL LOBE. J. Scholtens (*Psychiatrische en Neurologische Bladen*, 1903, March, April).

The mechanism of speech, as is well known, develops after individually different lines. It is probable that the usage or non-usage of associated fibres, which carry the psycho-physiological impulse, has an influence upon the resistance of these fibres against a lesion. So it is possible that with the same localization a tumor in different persons may cause different disturbances of speech. In the apperception of words in general in one person the visual, in some others the acoustical are predominant. The author adheres to the division in sub-cortical and trans-cortical aphasia, but points out, that it is a purely clinical and arbitrary denomination, which does not presume anything at all about an accurate localization. The first case, a patient of Prof. Winkler, is that of a gardener, 51 years old, suffering since a couple of months from symptoms, indicating a growing tumor, in the left hemisphere. Vision and audition are not disturbed. *He hears words; understanding of words is correct; comprehension of words is disturbed.* This becomes clear if patient answers a rather uncommon question. Asked to present his left hand, he looks at that hand, but does not lift it up. There is no echolalia; he recognizes a patriotic song; he does not recollect the words. He recognizes objects very well; the denomination is disturbed.

Patient *sees letters* and names them, also numbers; he reads *written phrases* correctly; it is doubtful whether he comprehends them. *Reading aloud* is correct; he cannot repeat it. He speaks very little spontaneously; he repeats spoken words well. *Spontaneous writing* is disturbed; also *writing on dictation*.

On account of this sensory aphasia and the other symptoms a tumor of the left temporal lobe was diagnosed. The left facial paralysis is explained by supposing a strong associative connection of the facialis center with the speech mechanism.

After incision of the dura a gliosarcomatous tumor is found and extirpated. Patient suffers no more of headache and feels well.

In a second case, also a patient of Prof. Winkler's, where a large tumor was found in the temporo-sphenoidal lobe, the following symptoms were present:



Patient *hears words* and understands them, but comprehension is often disturbed. He recognizes and sees objects; sees letters and denominates them; speaks little spontaneously; reads aloud correctly; writes well spontaneously; writes well on dictation. Also these symptoms the author explains by interference of the fibres which connect the acoustical image and the centre of comprehension. The speech disturbance can also in this case be denominated: transcortical sensory aphasia, inasmuch as the principal trouble was found in the comprehension of words, which were well heard and usually well understood.

Patient was operated upon and succumbed afterwards, the tumor being too large to be removed. Nearly the entire frontal half of the temporal lobe was involved in the tumor mass.

MUSKENS (Hague).

A CONTRIBUTION TO THE STUDY OF TYPHOID MYELITIS. Lepine (Revue de Médecine, Nov. 10, 1903).

The author reports a case of myelitis occurring in typhoid fever and undoubtedly caused by the bacillus of Eberth. The patient, a janitor living in very bad hygienic conditions, was admitted to the service of Dr. Lepine with marked and typical symptoms of typhoid fever. There was hyperpyrexia and a sub-delirium which made his examination difficult. The Widal serum reaction was positive. At one time he developed symptoms of perityphilitis, marked tenderness in the right iliac fossa and rigidity of the right rectus muscle. Hemorrhages occurred frequently but were small in amount. On admission it was noted that there was weakness in both lower limbs, and voluntary movements, while possible, were incoördinate. Knee-jerks and Achilles jerks were exaggerated, and the Babinski reflex was present on both sides. Three days after admission paralysis was complete in both legs, flaccid in character, cutaneous sensation much diminished, knee and Achilles jerks lost. He developed incontinence of urine and feces. There was no pain. Nine days after admission he developed decubitus. The patient died after an illness of fourteen days, and an autopsy was held fifty-six hours later. The intestine showed lesions typical of typhoid fever, ulcerations extending even up to the duodenum. There were signs of peritoneal involvement in extensive adhesions and discoloration. The liver was deeply congested and the spleen enlarged and softened. The brain and spinal cord were carefully removed and examined, and a résumé of the results show: A lepto-meningitis of the spinal cord, and in scattered areas over the cortex cerebri; there was an anterior poliomyelitis in the lumbo-sacral region, with a central myelitis and some changes in the white matter, mostly in the anterior and lateral columns. A great increase in the quantity of cerebro-spinal fluid was noted and insignificant lesions were found in others parts of the nervous system. During life the diagnosis of myelitis was made, on account of the absence of pain, the general paralysis of the lower limbs, the sphincter trouble and trophic changes. The autopsy proved the correctness of this diagnosis, while the typhoid nature of the disease is shown by the clinical history, the serum test and the presence of intestinal lesions. Paralysis of both lower extremities in cases of typhoid fever has been reported by a large number of observers, and in some cases with autopsy a myelitis has been found. Lepine states that there certainly is such a condition as typhoid myelitis, and he believes it to be of vascular origin on account of the distribution of the lesion and the round celled infiltration surrounding the blood vessels.

C. D. CAMP.

INTRACRANIAL TUMORS. I. W. BLACKBURN (Journ. American Medical Association, Nov. 7, 1903).

Can the term meningeal endothelioma be applied to a certain class of brain tumors? The writer reports seventeen such growths showing the structure of spindle cell sarcomas, which he designates as endothelial.



They arise from the dura as circumscribed warty growths compressing, but not infiltrating the substance of the brain. Their slight attachment to the dura has frequently led to the erroneous supposition that their origin was within or from the cerebral tissue. Their location was more commonly at the base of the brain and the ease with which they could be "shelled out" from the surrounding tissues invites surgical intervention for accessible growths of this character with focal symptoms. Some objections exist to classifying these tumors with sarcomas, and these are recognized in the rather naïve statement that they cannot be classed with any other division of morbid growths, consequently must be placed with the sarcomata or in a class by themselves. The absence of metastatic growths or regional extension, the thickened and hyaline blood vessels they contain, and the disposition to undergo fibrous transformation and degenerative changes, especially calcification, are all in marked contrast to the characteristics of malignant tumors; they would denote instead the healing and cicatrizing inflammatory processes associated with large amounts of granulation tissue, or perhaps more closely ally these neoplasms to benign neuroplastic tumors. In two cases their origin from the endothelium of the arachnoid villi was demonstrated. A tumor of this sort described by Brower in 1901, was termed peri-endothelioma.

W. B. NOYES.

NERVE IMPULSE. A Lehmann (Pflüger's Archiv, June 26, 1903).

One is reminded of Matthews' ingenious electrophysical theory of the origin of the nerve current, by the new hypothesis worked out in Copenhagen by this author. He holds that a living nerve, when thrown into functional activity, behaves in its electrical relations as a series of contiguous concentration chains, which come into play in such a manner that the stimulus occasions a change in concentration and hence arouses electromotive force.

JELLIFFE.

MULTIPLE SCLEROSIS WITH PSYCHICAL SIGNS. J. F. Kaplan (Roussky Vrach, No. 35, 1903).

Cases of atypical multiple sclerosis, not fully corresponding to the descriptions as given in some text-books, have been reported by many, and especially by Charcot and his disciples, and it is sometimes difficult to distinguish the cases in which the cerebral symptoms predominate from general paralysis of the insane. An interesting case is reported by Kaplan in a field laborer, thirty-six years of age, with a clean personal and family history. Caught a severe cold some seven to eight years ago, after which he was confined to bed for twelve days, during which time "he neither spoke nor ate; was in a dying condition." After convalescence could hardly walk about, acted very strangely, threatened to kill and murder the people around, and even attempted to kill his own son; it was also noticed at that time that he walked with difficulty, frequently staggered, could not keep his head straight, and his speech became impeded; has also made frequent attempts at suicide. On examination of his nervous system it was elicited that the pupils, of normal appearance, reacted well both to light and accommodation; no nystagmus; fundus oculi normal. When at rest muscles of face and tongue normal; but when speaking the pronunciation is not clear, individual words merge, as it were, one into another, and then break off; the beginning of the word is clear, but its ending loses any definite character; every muscle in the face participates in his attempts to speak, whereby the face takes on frequently a smiling aspect, evidently beyond patient's control. No bulbar symptoms. Trembling of head and muscles of arms, most noticeable when patient walks or makes any motion with his arm; the latter became so pronounced that at times it was necessary to feed the patient. Muscles normally developed; no ataxia; reflexes, both tendon and skin, exaggerated; no ankle clonus. The gait is uncertain, as if patient is not sure of his ground; the steps are unequal, either

in size or rhythm, and the uncertainty grows the more embarrassing when patient has to turn about. The general psychical condition is that of dementia, and the change in his mental state dates back from the beginning of his illness. Later on he became apathetic and entirely indifferent to the surroundings; the stupidity and total indifference increased to such an extent that patient was simply leading a vegetable life. Not even the news of his child's death called out any expression on his face; he is, however, at times subject to attacks of violence, of rapidly passing nature. The author surmises that his original illness must have been one which produced distinct organic changes in the nervous system of the patient as the subsequent course of the disease shows it. Notwithstanding the absence of the classic "scanning" speech seen in multiple sclerosis, the defect is, however, pronounced enough not to exclude this affection, in combination with the other symptoms, such as the involuntary smiling, the absence of hallucinations, etc.; the patient's gait is somewhat paretic, and is not distinctly spastic. The case, to be sure, is atypical, and the psychical defect is rather predominating, but may not just this predominance be the characteristic property of such a class of cases? However, it must be admitted that such dementia is rather rare in multiple sclerosis, and further study of such cases is necessary in order to establish definitely the nature of such complications.

ROVINSKY.

## Book Reviews

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LES NERFS DU COEUR CHEZ LES TABÉTIQUES. Par le Dr. Jean Heitz. G. Steinheil, Paris, 1903.

The first part of this monograph is devoted to the study of the literature on the anatomy and physiology of the cardiac plexus; the second part contains the results of the author's own investigations. In regard to cardiac lesions in association with tabes, Heitz thinks that those of the aorta are the only lesions of much importance. He has examined 98 clinical cases of tabes and found some alteration of the aorta or of the aortic valves in 24 cases, and in most of these the tabes was well advanced. It does not follow, however, that aortic disease occurs only in the advanced cases. Tachycardia of moderate degree is common in tabes. Heitz has found the cardiac muscle abnormal in every case in which he has examined it, even when cardiac symptoms were absent during life. He examined the pneumogastric nerves in ten cases of tabes and in one of paresis, but only in four cases could he find pathological changes. The lesions of the sympathetic ganglia are slight. He concludes that in the majority of cases of tabes the different parts of the nervous apparatus of the heart are implicated in different degrees by parenchymatous neuritis, but the aortic disease in tabes is not dependent upon the nerve lesions, and there is no relation between the gravity of tabes and the cardiac lesions.

SPILLER.

DIE INDIKATIONEN ZU CHIRURGISCHEN EINGRIFFEN BEI INNEREN ERKRANKUNGEN. Für den Praktiker bearbeitet von Prof. Dr. Hermann Schlesinger. Erster Teil. Gustav Fischer, Jena, 1903.

This little book is for the busy practitioner, and is intended to give him some knowledge of surgery as applicable to clinical medicine. Etiology, pathological anatomy, symptomatology and diagnosis are referred to briefly in each chapter. The surgery of the nervous system receives much attention, but chapters are devoted also to the diseases of the bones and joints, of the respiratory tract, of the pleura, of the mediastinum, of the circulatory system, and of the digestive tract.

SPILLER.

THE TENTH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE CRAIG COLONY FOR EPILEPTICS AT SONYEA, LIVINGSTON COUNTY, NEW YORK, OCTOBER 1, 1903.

The tenth annual report of the Craig Colony for Epileptics shows that the colony has a population of 831 patients. Accommodations are to be made for an additional 200 early in 1894, but several hundred will still remain on the waiting list. The cost of maintenance was \$155 per capita, a little higher than last year. Dr. Spratling's report shows 29 men and 22 women were discharged as improved; 17 men and 16 women as unimproved; 7 men and 6 women as insane; 1 man and 2 women as recovered. "The great majority of epileptics admitted to the colony are palpably incurable on admission. Less than one and one-half per cent of them have had the disease less than a year, while many have had it from 30 to 40 years. Fully 50 per cent who enter show mental impairment in some form or degree, being either demented, feeble-minded, imbecile, idiotic or insane." There appears, however, to be a fair prospect of recovering, at least five per cent of even the chronic cases. The general physical and mental incompetency of the admissions is dwelt upon at length: "Scarcely ten per cent of those admitted earn the cost of their maintenance," the custodial care of the institution is therefore a great burden and handicap in dealing with the more hopeful cases. The problem of classification, education and occupation



continues to be an important function of the colony. In 188 who had no occupation on admission, 101 were established at useful employment soon after entrance.

The general unfitness of the admissions is well shown in the physical status of 801 patients which was recorded good in 270; fair in 442 and poor in 89; while the mental condition in the same number is arbitrarily designated as good in 101, fair in 186, enfeebled in 286, demented in 96, imbecile in 131 and idiotic in 19. In 176 deaths, 40 per cent were due to some phase of the disease itself, showing that the malady is far from playing an unimportant rôle in its own mortality statistics. The average age, that of twenty-nine years in 220 deaths, shows that the disease materially affects the average longevity of life.

A new law now permits part pay patients, and from this source the colony received a little over \$5,000.00 in the past year. In future the medical and scientific work of the colony will be concentrated as much as possible in the hospital and adjacent reception wards.

Dr. Onuf, the well known neuro-pathologist, has been engaged to take charge of research work in the pathological department.

A detailed analysis of a method of colony construction for the defective class is given, in which due emphasis is placed upon classification, treatment, occupation and education. The continued growth of the industrial features of the colony are gratifying.

The rather generally accepted opinion that eye strain has but little or no influence in inciting or continuing this disease has been given statistical proof at the colony during the past two years.

In respect to the fantastical theory of Dr. Gould, that eye strain is causative of epilepsy the report has to say:

Dr. Geo. M. Gould, of Philadelphia, has long been of the opinion that epilepsy is not infrequently caused by eye strain, the relief of which would cure the disease. In my last annual report (p. 46) reference was made to the work of Drs. Gould and Bennett in carefully examining and fitting 68 patients at the Colony with glasses. We quote from the report referred to in part as follow:

"The preliminary report of this work published by Drs. Gould and Bennett in *American Medicine* for September 18, last, is full of interest. Among other things the report states:

"The astonishing fact, and one that we think deserves most serious attention, is the enormous proportion among these patients of cases of injurious astigmatic and anisometropic defects. Sixty-seven of 68 had astigmatism and it is noteworthy that about one-half of the entire number of patients had unsymmetric astigmatism, a defect which almost invariably produces the most injurious results upon cerebral and assimilative function. \* \* \* We do not say that these high and most injurious ametropic defects caused the epilepsies of these patients; that can only be determined in future by the careful records of seizures to be kept and compared with those of the past."

"If there is anything of value in the treatment of epilepsy along this line, we are anxious to know it, and all patients so carefully fitted with glasses by Drs. Gould and Bennett, are being especially observed, so that in a year or so we may make comparisons of their seizures before they wear glasses and after."

We regret having to report disappointing results. The table that follows shows that one patient only out of the 68 experienced any benefit in his disease while wearing glasses. This man's attacks were usually severe and were preceded by a definite bilateral motor aura. His mental condition was unimproved and he has now gone ten months without a seizure. He had four attacks in October and four in November after being fitted with glasses late in August, 1902.

It may be noted elsewhere in this report that we have a right to expect

a cure in 5 per cent of chronic cases such as the Colony to this time has received.

In conclusion we may say that this report is by far the most important contribution to the practical colonization of epileptics yet issued anywhere, and although its tone is not quite so optimistic as some of us may have hoped for concerning the capability of epileptics in earning their livelihood or for the curability of epilepsy, the report is fully justified, when the very unfortunate class which the colony has been obliged to receive is taken into account. It demonstrates that even under the best conditions too sanguine expectations should not be entertained as regards the self-support of state colonies for chronic epileptics.

L. PIERCE CLARK.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. Edited by Solomon Solis-Cohen, A.M., M.D. VIII, Rest, Mental Therapeutics, Suggestion, by F. X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College of Philadelphia. P. Blakiston's Son & Co., Phila., 1903.

This book is one of the most valuable of the series edited so ably by Dr. Cohen. Its author, distinguished for his scientific contributions to neurology, shows in its pages his thorough acquaintance with the practical side of his specialty. In this day of elaborate pathological investigation, it is encouraging to have neurological therapeutics receive serious attention from one fitted by training and experience to present the subject in the best possible way.

The book is divided into three parts, as indicated by its title, Rest, Mental Therapeutics, and Suggestion. The foundation for the consideration of the subject of rest is laid by a thorough discussion of its antithesis function. The merits of the book are shown at its start in the simple, straightforward manner in which the well-known facts regarding physiological activities are presented. Functioning tears down, rest rebuilds. According to the degree of physiological activity and of rest, is the resultant in health or in disease. The forms of change which result from functioning, chemical, morphological, and physical; the inhibitory action of wasting substances both within and outside of normal limitations; permanent structural changes from excessive functioning; the relations of overwork and overstrain to diseases of the blood vessels and kidneys, and to the pains and aches of fatigued limbs—all these and much more which add to a proper understanding of such affections as neurasthenia, occupation neuroses and some other forms of nervous and mental disease are sufficiently discussed.

The symptomatology of neurasthenia, whose sign manual is irritability and weakness, is presented in a manner which rivals that of Beard in his classical work on the subject—the changed reflexes, the paresthesia which tax descriptive power, the perversions of the special senses, the fears and fixed ideas, the modifications in pulse and in heart action, as well as in secretion, and the lowering of the sexual tone.

The fatigue neuroses, neurasthenia in all its forms and phases, hysteria, hypochondria, chorea, epilepsy, migraine, and some organic affections in which rest and its adjuvants are the most appropriate treatment, are thoroughly considered. The description and diagnostic symptomatology as well as the modes of treatment of these functional nervous disorders, receive a clearer exposition than in any neurological work of recent or earlier times. Any physician who wishes not only to be enlightened on the nature and symptomatology of these affections, but to obtain explicit instructions as to the best methods of carrying out treatment with such therapeutic agents as massage, electricity, hydrotherapy, isolation, partial or absolute rest methods, full feeding, and regulated exercises cannot do better than turn to the first part of this book, in which everywhere one is im-

pressed with the thought that the author is writing about matters with which he has become acquainted by actual experience.

In Part II, which is concerned with the therapeutics of mental disease, the author, after a brief consideration of the prevention of insanity, first takes up drugs and measures which are applicable in different forms of mental disease such as melancholia, mania, paranoia and paresis. The great importance in most cases of the isolation of the insane is emphasized. The methods of forcible feeding and the virtues of sponge bathing, of prolonged warm baths and of the wet pack are described. Among sleep-producing and quieting drugs hyoscin is properly given a prominent place. We can fully indorse the recommendation of sometimes conjoining the use of hyoscin and paralydehde. Dercum regards scopolamin as more constant in its action than hyoscin. The virtues of such drugs as trional, sulphonah, urethane, chloralamid and chloretone are detailed in a manner which shows a familiarity with their action which is also exhibited in the remarks on the uncertainties and irregularities in action of the last three drugs. Chloral, the bromides, and opium receive due and discriminating consideration.

In taking up the treatment of special forms of mental disease, the author considers the subject under the classification presented by him at the American Neurological Association, in other words, under the clinical groups of delirium, confusion and stupor; melancholia, mania, and circular insanity; paranoia; the neurasthenic insanities; simple dementia; paresis; the insanities of adolescence; and the insanities of intoxication, including the drug habits. Dercum enrolls himself with Kraepelin by asserting his belief that melancholia and mania are but different phases of the same disease. The question of the committal of paranoiacs is considered, and the importance of the step shown; also the dangers and annoyances to the physician which may result from commitments. With regard to his therapeutic recommendations in special forms of alienation, it need only be said that they represent our most advanced knowledge.

Few subjects are of as much importance to the neurologist, or indeed, to the physician, as that of suggestion. He who thoroughly understands how to take advantage of suggestibility without abusing his opportunities, knows that which is of first importance to the medical practitioner. In Part III of the book, Dercum takes up the subject of suggestion and treats it in a manner which holds the attention of the reader. First generalizing on the importance of the subject in the practice of medicine, he calls attention to the widespread use of conscious and unconscious suggestion in every walk of life. The mode of action of suggestion is next taken up. He discusses the best way of using direct suggestion, emphasizing moderation in its use. While suggestion may be of value in promoting other measures in neurasthenia and hypochondria, it is especially useful in hysteria. Its employment and its limitations in hypochondria and in mild melancholia are mentioned.

By way of contrast, and as adding general interest to the study of the subject of suggestion, Pythonism, Shamanism, Mesmerism, and allied subjects, the priests of Apollo, the conjurers of northern Asia, Agrippa and Paracelsus, Franklin, the Abbe de Faria, the French commissions and the German seekers after the truth of animal magnetism all come in for brief but interesting consideration.

This work is well worthy of fuller analysis, but the space at our disposal has only permitted us to glance at some of its salient features. We believe it will become a favorite book of reference with the student, general practitioner and neurologist. It is convenient in size, well printed, and has, what is so often lacking in recent works, an excellent index.

CHAS. K. MILLS.



THE  
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Nervous and Mental Disease

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Original Articles.

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IS EPILEPSY A FUNCTIONAL DISEASE?<sup>1</sup>

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In our conception of diseases tradition plays an important part and often handicaps investigation. In medical text-books from the earliest times epilepsy has been classed as a functional disease, and this view does not seem to have been seriously questioned. Yet a careful review of many facts offered by recent advances in our knowledge of nervous affections seems to me to demonstrate the fallacy of the prevailing opinion and to prove conclusively that epilepsy is usually, if not always, an organic disease.

These facts I wish to present to your consideration in the hope that when they are criticized and discussed we may come to an agreement and thus change permanently the conception which we have hitherto entertained in regard to the nature of epilepsy.

My argument will not be a theoretical one only. It is based upon a careful study of 2,000 cases of epilepsy, which have been seen personally, and of which I have satisfactory records. I shall not, however, weary you with statistics drawn from these cases. They are presented in an appendix to this paper in the form of tables. I shall, however, draw upon these tables for a number of statements which they prove.

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<sup>1</sup>Read before the Philadelphia Neurological Society, Nov. 24, 1903.

A. In the first place, I think we all agree that it is possible to draw a fairly sharp line clinically between Jacksonian epilepsy and ordinary so-called idiopathic epilepsy.

The recognition of Jacksonian epilepsy is now universal, and we can distinguish several distinct types of this affection:

(1) There is the motor type, in which a local spasm of one or more parts upon one side of the body only—followed by temporary weakness—is the characteristic;

(2) There is the sensory type, in which a sudden hallucinatory perception occurs in any one of the many senses, to be followed by a temporary suspension of the power of perception in that sense;

(3) There is the aphasic type, in which a sudden interference with the function of speech takes place, either in its receptive or on its emissive side—either in the power of understanding or in the power to speak;

(4) There is the psychical type, in which dreamy states of the mind or imperative ideas dominate consciousness, arresting the normal flow of thought, and often leading to automatic acts whose object is not clear and of which no conscious memory remains.

In all these types we consider the Jacksonian attack a sure indication of local irritation of the brain cortex; we admit that it is a symptom of organic disease; we are guided by the variety of the attack to locate the disease and to proceed on the basis of the localization to operative interference in many cases. It needs no argument to-day to support the position that organic disease is the cause of Jacksonian epilepsy.

The form of organic disease may be one of many kinds. Thus tumors, abscesses or clots on or near the cortex are frequently productive of Jacksonian epilepsy. A focus of softening or of sclerosis due to embolism or thrombosis in a blood vessel, or due to a syphilitic deposit in the vessel wall or in the membranes or in the brain substance may be a cause. A plaque of gliomatous infiltration, such as we find in multiple sclerosis, may be a cause. But, whatever the organic lesion, the effect will be the same, provided it produces an irritation of the brain cortex.

It is not at all surprising that in any case of Jacksonian epilepsy the character of the attack is uniform. The fit always begins in

the same way in the individual affected. This is because the disease present has a definite location and produces a uniform kind of irritation in a single focus.

The attack is always recognized by the patient as one of a similar series, and, as consciousness may not be lost, the patient's description of the attack may be accepted.

It has been stated that a sharp line is drawn clinically between Jacksonian epilepsy and idiopathic epilepsy.

Let us see whether such a sharp distinction is justified:

In many cases of ordinary epilepsy (38 per cent. of my cases) the attack is preceded by a conscious sensation which we call an aura. That aura is in many cases identical in character with the sensation constituting or starting the Jacksonian attack. It is always uniform in the same patient, as are Jacksonian attacks.

The only difference between a Jacksonian attack of the motor type and an idiopathic attack is the extent of the spasm. In one it is limited, in the other general. In one it begins in one part and extends; in the other it begins in many parts, at once. In a Jacksonian attack the spasm may extend so as to finally involve all the limbs, and the Jacksonian attack may run into a general convulsion. In both a state of motor weakness follows the attack. Thus there is no essential difference between the two.

The same may be said of the sensory type. In the Jacksonian attack there is a sensation which often goes on to a spasm, and this in turn may go on to a convulsion. In ordinary epilepsy an aura which is identical in many ways with a Jacksonian sensory attack occurs and goes on to a convulsion. Thus in my table of varieties of aura I find numbness in one arm or both in 76 cases, numbness in one leg or both in 27 cases, numbness in one or both sides of the face in 22 cases, numbness in the trunk in 4 cases.

Had these patients had a local spasm and not a general convulsion after the aura we should at once have suspected a lesion in the sensori-motor area.

I find visual hallucinations in 68 cases, auditory hallucinations in 30 cases, hallucinations of smell or taste in 14 cases.

Had these patients not had a general convulsion following we should have suspected a lesion in the occipital, or temporal or uncinate convolutions respectively.



I find in many cases that the fit begins with a cry—a discharge from the motor speech centre. I find in 57 cases an aura of a mental kind, a fear, a sense of bewilderment, a forced impulse to say and do something, a condition quite analogous to the psychical state seen in the Jacksonian attack, only differing from it in its sequel of a fit. I find in 158 cases a sense of vertigo, a loss of equilibrium, a sensation so frequently met with and so characteristic of lesion of the cerebellum that one might almost classify these cases as cerebellar epilepsy. It is possible that the sudden fall occurring in many cases is due to a sudden suspension of the cerebellar function.

Is there any sharp line to be drawn between Jacksonian epilepsy and ordinary epilepsy? Is it not merely a difference of degree in attacks essentially similar? Is it not probable that when the difference is so slight the underlying cause may be the same? Is it not possible that whenever we have a general convulsion preceded by a definite form of aura, we can conclude that we are dealing with a case in which a focus of irritation, organic in nature, is present in a definite locality in the brain? I see no other explanation for the attacks of epilepsy preceded or attended by a uniform aura. And this class amounts to 23 per cent. of my 2,000 cases.

It may be said that a sharp line has been drawn between Jacksonian epilepsy and ordinary epilepsy, on the ground that in the former there is no loss of consciousness, while in the latter there is such a loss. I think the difference here lies again in the degree of severity and rapidity of extent of the cerebral irritation and consequent shock. If a Jacksonian attack becomes very severe and widespread, consciousness is often lost. Any sudden shock to the brain obscures consciousness for a time. The time may be but a fraction of a second, as after a sudden blow on the head or a petit mal attack. It may be longer, as in a grand mal attack. It may be incomplete, as in those attacks in which a patient does not fall, but balances himself and makes inarticulate noises and slight grimaces, but is not convulsed and is merely bewildered. In this respect the difference between an attack, without or with a loss of consciousness, does not appear to argue any underlying difference in conditions present.

Therefore, the admitted fact that Jacksonian epilepsy is due to organic disease and the close resemblance in many cases (about 23 per cent.) between the attacks of Jacksonian and ordinary epilepsy seem to me to offer an argument that, in these cases at least, the ordinary type is due to actual lesions.

B. The second argument for the organic nature of epilepsy is drawn from a study of cases of maldevelopment of the brain. These cases are not included in my table of 2,000 epileptics, because I do not classify them together. But any one who has studied the subject of maldevelopment of the brain in the clinical types presented so commonly, viz., (1) imbecility and idiocy; (2) hemiplegia of infancy; (3) diplegia of infancy, or Little's disease; (4) the sensory types of infantile cerebral paralysis, cannot but admit that in these conditions epilepsy is a most common complication.

Of 400 cases of maldevelopment of the brain elsewhere analyzed<sup>2</sup> 156 patients were subjects of epilepsy, i. e., 39 per cent. Many of these patients presented such manifest symptoms of mental and physical defects that the epilepsy was admitted to be a secondary and minor matter. But it is not at all uncommon to have a child brought who is supposed to be suffering from epilepsy only; and to find, on obtaining a history or on making a physical examination, that, prior to the development of epilepsy there has been an apoplectic attack which has left a trace of hemiplegia or hemianesthesia or hemianopsia or mental weakness. In many cases the history shows that difficulty at the time of birth had resulted in a state of asphyxia or a slight birth palsy of cerebral origin, which had attracted only a little notice, as it had subsided, but later epilepsy has developed without known cause. (38 cases, 2 per cent.)

In two patients, brought to me for epilepsy only, I have found bilateral homonymous hemianopsia which had been congenital, and neither of these children was aware that vision was defective. In both a history was obtained of hard labor with forceps delivery and also difficulty in maintaining the life of the infant for some days. In both the epilepsy had developed during the second year,

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<sup>2</sup>Organic Nervous Diseases," page 530.

but in neither had any defect of the brain been suspected until my examination showed the hemianopsia. In both a flattened skull in the occipital region indicated a defective development of the occipital lobe. Here was a clear proof that a congenital lesion had been the cause. Among my 2,000 cases of epilepsy, 192 showed positive signs of maldevelopment of the brain.

In the cases of maldevelopment of the brain suffering from epilepsy, the epileptic attack may be Jacksonian in type, or it may be an ordinary fit. It may be preceded by an aura of sensory or motor type, or it may not, though in this class of epileptics the presence of an aura has been noticed in a much larger percentage than in idiopathic epilepsy.

If we study the age at which idiopathic epilepsy develops, we must confess that it is a disease of childhood and youth. Of my 2,000 cases, 622 developed before the age of 10, and 755 between the ages of 10 and 20; that is, 68 per cent. developed before 20 years of age. The disease is one, therefore, which appears during the period of brain development.

When epileptics are carefully studied, it is usually possible to find evidences of some mental or physical sign of degeneracy or of defective evolution, and this is particularly true of those who are affected in infancy or in youth.<sup>3</sup> The difficulty experienced by parents and teachers in educating epileptic children is not merely to be traced to the irregular attendance upon school, due to the occurrence of fits, nor to the depressing effect of bromides on mental activity and memory. It is due much more commonly to an inherent deficiency in the mental power, especially in those higher powers of the mind—attention, concentration, and self-control.

Do not these facts then suggest strongly that, as epilepsy is a symptom of organic disease in the cases of maldevelopment of the brain, it may also be a symptom of organic disease in those cases in which its appearance in early life and its association with

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<sup>3</sup>A somewhat arbitrary classification of the mental state was attempted in the study of my 2,000 cases. It is recorded as idiotic in 11 cases; imbecile in 16 cases; poor in 580 cases; fair in 269 cases; good in 854 cases. Thus in about 44 per cent of the patients there was some evidence of defective mental power.



imperfect capacity suggest an imperfect brain growth. Are there not many cases, supposedly idiopathic and without apparent cause, which are actually due to some slight and easily overlooked defect in the brain? And if, in such cases, the epilepsy is a mere symptom of brain defect, these cases are rather to be classed with the cases of defective mental development of organic origin than to be classed with the functional neuroses.

And this leads me to remark that it is a fallacy to state that an epileptic presents no symptoms between the attacks. This statement is often made and conveys the idea of a disease characterized by occasional attacks, but without permanent continuous symptoms—like a migraine.

In my experience it is the exception rather than the rule to find an epileptic in a perfectly normal mental and physical condition without signs of degeneracy or symptoms of some imperfect function. Many patients show such signs and symptoms. They may not be noticed by the parents. They are often recognized by the physician. They are sometimes wrongly interpreted as the cause of epilepsy. Much futile treatment of epilepsy has been based upon the discovery of defects of growth or structure or function, and upon attempts to correct these, while the eyes have been closed to the fact that such defects and the epilepsy have no causal relation, but are both effects of an underlying condition. Here come in the cases of so-called reflex epilepsy, where an attempt is made to cure an underlying organic disease of the brain by cutting eye muscles, removing adenoids or tonsils, washing out the stomach or colon, circumcising and removing ovaries or correcting uterine displacements. I do not deny that it is our duty to remove all causes of irritation from a nervous system peculiarly sensitive to peripheral impressions and peculiarly liable to react to such impressions by a nervous explosion. But I do deny that such measures can cure epilepsy, for I do not believe that peripheral irritation ever actually caused the disease. I am constantly seeing cases where, in spite of such treatment, the disease persists.

Therefore I would maintain that many cases of idiopathic epilepsy are actually cases of maldevelopment of the brain, with gross or microscopic defects; that the associated mental and physical

signs of degeneracy merely indicate this maldevelopment, and that, like them, the epilepsy is a manifestation of an organic disease, or defect.

C. Another argument for the organic nature of epilepsy can be urged from a study of the alleged causes of the affection. (See Table V.) I use the term supposed causes, for it is not always certain that an event or a condition preceding the development of the disease has a causal relation to it.

The first of these causes is heredity. In my 2,000 patients there was supposed to be a bad inheritance in 700 cases. By bad inheritance I mean the existence of epilepsy in some near relation (136 cases), of alcoholism in a parent (120 cases), of serious nervous disease (118 cases), of rheumatism (108 cases), of tuberculosis (76 cases), or of some combination of these (143 cases). (See Table IV.) This does not imply that the disease itself is inherited or transmitted. Were it so the proportion of cases of direct transmission would be much larger (17 cases in 2,000), and, as one person in 500 in the community is afflicted by the disease, the increase in its frequency would be far greater. It does imply that the patient inherits a weak and probably a defective nervous system—has, in fact, an organically imperfect brain.

The second of these causes in frequency is trauma of the head. That trauma of the head is more commonly followed by epilepsy than trauma of other parts of the body is proved by the statistics of the Franco-Prussian war. The records show that, among 8,985 persons wounded on the head, 46 developed epilepsy, while among 77,461 persons wounded elsewhere only 17 became epileptic. I have a history of trauma in 229 cases, i.e., 11 per cent. When a fracture of the skull causes a laceration of the brain, we are never surprised at the subsequent development of epilepsy, and we never question the organic basis of the disease. In many cases there is no apparent fracture of the skull, but there is every reason to suppose that a hemorrhage within the brain has occurred—very possibly small in extent and capillary in origin—producing, however, a destruction of tissue; which is followed by the formation of a scar in no way different from that produced by an accidental or a surgical wound.

The traumatic cases, therefore, are in all probability dependent upon an organic lesion in the brain.

In the list of supposed causes tabulated are many of the infectious diseases—scarlet fever, measles, whooping-cough, diphtheria, typhoid fever. Marie has shown that multiple sclerosis of the nervous system—a disease in which epileptiform attacks may occur as a symptom—is probably a sequel of these diseases and due to the infectious agent, microorganism or toxin, which causes them. Is it not possible that in the epileptic cases developing after an infectious disease some similar sclerotic plaque may have been produced in the brain, and that in these cases the disease has an organic basis? Among my 2,000 cases, 50 developed as a sequel of such diseases.

The cases following sunstroke are undoubtedly organic in origin and due to capillary hemorrhages.

The epilepsies of advanced life, which are happily few in number (but 26 cases developed after the age of 50) can almost invariably be traced to endarteritis and atheroma. This is proven by the fact that, as a rule, these patients have attacks of apoplexy, indicative of cerebral hemorrhage or thrombosis, either just before or soon after their first epileptic fit. Hence we may believe that senile epilepsy is surely of organic origin.

Other supposed causes, such as childbirth, dentition, syphilis, menopause, overwork, etc., seem to me too vague and uncertain to be accepted as true etiological factors, and do not throw any light on the pathology. Fright is undoubtedly a cause, as 119 patients had the first fit soon after a fright, too large a number to be explained as mere coincidence. But this, again, has no known bearing upon pathology.

Therefore the study of the supposed causes indicates that in the cases in which they can be accepted as probable causes, they are so because they have produced organic disease of the brain.

From a consideration of these various lines of argument it seems to me probable that epilepsy is to be regarded as an organic disease.

D. This is not a new idea. The literature of epilepsy from the time of Schroeder van der Kolk to the latest treatise by Binswanger, is full of observations in its confirmation. But the stum-



bling block in the way of their acceptance has been that each observer in turn found some new lesion or located the disease in a new region of the brain. And as the tendency of the scientific mind is to search for a single cause for an effect, the multiplicity of causes advanced by pathologists was thought to detract from the force of their conclusions. The sclerosis of Ammon's horn noticed by Meynert and also found by many others has been forgotten or passed over. The gliosis disseminata found by Féré, Chaslin, Alzheimer and Eurich has received little attention. And the recent studies by L. Pierce Clark and Prout and others of the finer degenerative changes in the cells of the cortex found by them uniformly in the brains of epileptics have excited little interest. As a matter of fact, all these observations are worthy of most careful attention. They all demonstrate the existence of gross or microscopic changes in the epileptic brain.

*Conclusion.*—The brain is a storehouse of energy, ready to give it forth in orderly manifestation as in voluntary action and speech; or in disorderly discharge, as in an epileptic attack. The attack is the symptom, it is not the disease. The disease is a disorder of control over inherent energy. Its existence is proof of a weak and defective organization of the brain, and any lesion, no matter of what kind, and no matter in what place, is capable of interfering with these mechanisms of control and of giving rise to the symptom. When the symptom is present there is evidence of a defect of control. And it seems to me far more reasonable, in the light of all the facts here presented, to admit that epilepsy is an organic disease of the brain characterized by a lack of control over the mechanisms of motor energy.

TABLE I.  
*Age at onset.*

Under	Cases	Under	Cases	Under	Cases	Under	Cases
1 yr.	67	11 yrs.	74	21 yrs.	66	31 yrs.	42
2 yrs.	93	12 "	62	22 "	61	32 "	14
3 "	80	13 "	77	23 "	53	33 "	18
4 "	55	14 "	74	24 "	37	34 "	18
5 "	58	15 "	114	25 "	28	35 "	13
6 "	49	16 "	85	26 "	26	36 "	14
7 "	53	17 "	92	27 "	28	37 "	11
8 "	60	18 "	71	28 "	29	38 "	11
9 "	47	19 "	64	29 "	17	39 "	13
10 "	56	20 "	42	30 "	23	40 "	6
	<hr/> 618		<hr/> 755		<hr/> 368		<hr/> 160

Under	Cases	Under	Cases	Under	Cases
41 yrs.	12	51 yrs.	3	63 yrs.	2
42 "	6	52 "	3	66 "	1
43 "	8	53 "	2		
44 "	4	54 "	2	70 "	1
45 "	7	55 "	1	74 yrs.	1
46 "	6	56 "	0	76 "	1
47 "	9	57 "	1		
48 "	4	58 "	2		
49 "	5	59 "	2		
50 "	2	60 "	2		
	<hr/> 63		<hr/> 18		<hr/> 6

Males 1163. Females 837.

TABLE II.  
*Character of Attacks.*

		Cases
<i>a</i>	Grand mal and psychic.....	3
Grand mal .....	Grand mal petit mal and psy- chic .....	6
Grand and petit mal.....	Petit mal and psychic.....	2
Petit mal .....		
Jacksonian .....	<i>b</i>	
Psychic .....	Diurnal and nocturnal.....	882
Grand mal and Jacksonian....	Diurnal only .....	658
Grand and petit mal and Jack- sonian .....	Nocturnal only.....	380

TABLE III.  
*The Varieties of Aura.*

An aura was present in 38 per cent of the cases, and in almost every patient never varied in its character in different attacks. The following varieties of aura were noted:—

Cases	Cases
Epigastric sensation .....	Respiratory sensations.....
198	16
Cephalic sensation of vertigo....	Hallucinations of smell .....
158	8
Numbness in the arms.....	Hallucinations of taste.....
76	5
Visual hallucinations .....	Sensation of numbness in trunk
68	4
Mental states with fear.....	Sensation of thirst.....
51	4
Cardiac sensations .....	Hallucinations of smell and taste
34	1
Auditory hallucinations.....	Sensation of hunger.....
30	1
Abdominal sensations.....	Sialorrhea .....
25	1
Numbness in the legs.....	Diarrhea .....
27	1
Numbness in the face.....	Tremor .....
22	1

TABLE IV.  
*Hereditary factors noted in 700 cases.*

Cases	Cases
Epilepsy .....	Rheumatism and nervous disease
136	18
Alcoholism .....	Tuberculosis and rheumatism...
120	16
Nervous diseases .....	Alcoholism and tuberculosis....
118	16
Rheumatism .....	Alcoholism and epilepsy.....
108	7
Tuberculosis .....	Alcoholism, nervous disease and tuberculosis .....
76	5
Alcoholism and rheumatism....	Rheumatism and epilepsy.....
38	3
Rheumatism and nervous diseases	Alcoholism, rheumatism and tu- berculosis .....
18	2
Tuberculosis and nervous diseases	
19	

TABLE V.  
*Alleged Cause of the Epilepsy.*

	Cases		Cases
Trauma .....	229	Sunstroke .....	12
Fright .....	119	Physical strain.....	11
Alcoholism .....	61	Measles .....	12
Invalidism .....	49	Indigestion .....	10
Mental strain .....	36	Arterial sclerosis .....	8
Menstrual disorder .....	24	Syphilis of the brain.....	8
Dentition .....	23	Whooping cough.....	6
Child-birth .....	24	Rickets .....	5
Scarlet fever .....	20	Excessive heat .....	5
Infantile palsy .....	19	Trauma to mother.....	4
Maldevelopment of brain.....	19	Diphtheria .....	4
Masturbation .....	14	Typhoid fever .....	4
Menopause .....	11		



## A CEREBELLAR TUMOR; OPERATION; RECOVERY.\*

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H. A., journalist, aged 39. I first saw him January 20, 1902, in consultation with Dr. E. M. Nelson, of St. Louis. After a second examination a few days later, I announced my opinion that there was a tumor of the cerebellum on the right side, and that an operation was the only chance—and that, probably, a very poor one.

The patient had meantime told me that Dr. Archibald Church, of Chicago, had made the same diagnosis fifteen months previously. I communicated with Dr. Church, who kindly sent me his notes. They were made over a year prior to mine and I shall present them first, as follows:

“When I saw him in October, 1900, I got substantially the following facts: He had a grandfather on the paternal side who was arthritic, and a brother had migraine, otherwise the family is free from significant factors. The personal history is also practically negative. He stated that in July, 1899, in Manila, he noted a tendency to go to the left. A few days before that he had been exposed to the sun with some general symptoms of feeling chilly, etc. He took quinine and a long sleep and was all right again the same day. On his return voyage of 60 days he was troubled with frequent vomiting in the morning, not attended by nausea, and several times before I saw him the vomiting had been repeated.

“There was twitching in the fingers of the right hand and some stiffness, apparently a muscular over-tone. This rigidity also affected the right face and both limbs on that side. He was ataxic with a tendency to move to the left, due, as I suppose, to the rigidity on the right side. The right ear was almost absolutely deaf.

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\*Read by title at the meeting of the American Neurological Association, May 12, 13 and 14, 1903.

He complained of throbbing in the back of his head. Sensation was normal. His gait showed a drunken stagger with a little tendency to go to the left. His handwriting was cramped with a tendency to spasm in the right hand. There was ataxia in all four extremities. The reflexes were all exaggerated and on the right side a little more than on the left. Pupils were normal. At times he had vertigo on turning his head sharply in any direction. Dr. Wm. A. Mann, reported that on the right side the watch was not heard on close contact and that bone conduction was reduced. On the left side the hearing was 30—50, the air conduction greater than bone conduction. His eyes showed, right eye, 20—20, left eye, 20—20. The perimeter charts were practically normal but the disks showed swelling, and in the left a slight hemorrhage at the upper edge of the disk. Though the swelling was slight, Dr. Mann thought it was pathological. The muscles of the eyes were working in a jerky way, yet upon effort balanced well. In other words, there was a tendency to nystagmus. I made a diagnosis of cerebellar tumor. Subsequently he was given mercury, and especially iodide, in large doses, but without benefit as far as I can learn."

The notes of my examination correspond so nearly with the above that it will not be necessary to repeat them. It will be more satisfactory to note the slight changes which had occurred between Dr. Church's observation and mine.

The gait was still a "drunken stagger" with a spastic element added; the stiffness and jerkiness being more evident in the right leg. Locomotion had become so difficult that there was little inclination to get about. The ataxia was much more pronounced in the right hand and arm than on the left side. Writing was practically impossible. The tendon-jerks were somewhat more plus on the right side; yet a difference in muscular power between the two sides was difficult to demonstrate at any point. The ataxia, however, was plainly more pronounced on the right side, including the face.

The only disturbance of general sensibility was in the distribution of the right fifth nerve. He complained of unpleasant but not intense paresthesia over the whole right side of the face and inside the mouth, "like it were lined with a thick skin." There

was a good deal of obtundity to temperature and to pin-sticks on the right, as compared with the left side of the face. This was more pronounced under the eye and near the margins of the lips than elsewhere. There was no pain or hyperesthesia.

He was totally deaf in the right ear, and there was no tinnitus on either side.

On March 22, 1902, I received from Dr. M. H. Post, the following report of his examination of the eyes: "Without correction of his visual defects, vision in the right eye 12—24; in the left, 12—24. With the plus glasses which he wears, vision in the right eye, 12—24; in the left, 20—19. Double images due to divergence.

"The ophthalmoscope gave both retinæ edematous. The swelling in the disc of the left eye is about  $2\frac{1}{2}$  m.m.; in the right possibly 2 m.m. There are minute hemorrhages on the discs, but I did not find any in the retinæ. The examination was not made in a 'dark-room' and was therefore difficult."

The patient informed me that after seeing Dr. Church, he had taken a good deal of iodide, but had finally discontinued it. In the last three or four months prior to my first examination he stated that he had been feeling generally better, especially he had had less severe vertigo, less diplopia, less fulness and other uncomfortable feeling about the head. But all along there had been more or less of a tendency to these head attacks, with occasional nausea and vomiting, followed by more or less physical and mental lassitude and depression.

Mentally there was no deterioration. The patient fully understood his plight and finally decided to try an operation. I had told him the chances were small. Dr. Church wrote: "In view of the long history of the case, the apparent slow growth of the tumor and its probable firmness, I would advise an operation. By the involvement of the right ear, however, I am led to fear that it is situated in a desperate location."

Dr. H. G. Mudd operated March 25. The opening in the skull had an average diameter of about two inches. Before the dura was incised, Dr. Mudd and myself imagined we could detect an unusual resistance or firmness, in pressing toward the median line. After incising the dura and palpating carefully, we felt quite pos-



itive that deep in the substance of the cerebellum there was circumscribed firmness. The cerebellum was incised and gently separated until the tumor was plainly visible, having a smooth appearance and grayish tinge which distinguished it from the surrounding brain substance. The operator introduced his finger (left index), and (with the right hand) a loop-end curette, and gently grasping the tumor between them, lifted it out. The only attachments were some frail, soft fibers, offering no resistance. The surrounding tissue was carefully explored and nothing else found.

The tumor was the size of a sparrow's egg and quite firm. Dr. Sidney Schwab, who kindly examined it, pronounced it a conglomerate tubercular growth.

The record from the time of the operation until a month later contains nothing of special interest. The patient protested that the right side of the face and mouth felt much better, that he was conscious of improvement even if we could not scientifically demonstrate it.

May 25, (two months after the operation), I made the following notes: Considerable anesthesia of right conjunctiva as compared with left. Some obtundity of sensibility in all portions of right side of face; very little if any different from what it was before the operation. Patient, however, is positive in his statement that both the face and inside of mouth feel better. Speech and locomotion are better and improving, and he has better control over the right arm and hand movements. The bulging at the site of operation is steadily increasing in size and sensitiveness. Pressure upon it produces the following phenomena: pain in the right temporal region, with suffusion and lachrimation of the right eye, general headache, vertigo, confusion. In attempting a more sustained pressure with my hand cupped to cover the whole of the bulging mass, the above symptoms were increased to a very disagreeable extent. The increased tension in the temporal artery was very visible, the tears running, the eye red; the general appearance of the patient resembling exactly a beginning attack of ophthalmic migraine.

I have not seen the patient for ten months. In a letter written April 6, 1903, he says:—

"I wish you could judge my physical condition instead of my-

self, but I will tell you as near as I can. The lump on the back of my head is larger, more prominent, and reaches farther down on the neck. My hand, arm and leg (right side) are jerky to a considerable extent. The right ear is as deaf as ever. The feeling is coming back on that side of my face. I can eat only on the left side and my teeth are wearing out. I go to my work every day, solicit my own advertising and commercial work, do all the writing and managing of my paper and I am as hearty as a harvester, though I weigh but 135 pounds."

The hernia which so unfortunately marred this case occurred in spite of our best efforts to prevent it. Supports were carefully adjusted and the patient wore them until he could no longer tolerate them.

Believing that the tumor was in a deep and "desperate" location, we felt that only a large opening would furnish opportunity for sufficient exploration and manipulation. Practically we found the opening none too large for the work that had to be done, although it fortunately proved to be easier than we had anticipated. We found no precedent for attempting an osteoplastic flap in this region. In fact, all the prominent authorities regard it as impracticable. Dr. Mudd, however, before operating on this case made some trials on the cadaver, which, as we expected, gave us no encouragement.

In a recent case, Dr. Mudd resorted to the following expedient. He had made an opening almost as large as in the case just described (i. e. almost two inches in average diameter). He had prepared beforehand, a thin silver plate with numerous perforations. After sewing the dura, he trimmed the plate to fit into the opening so that the edges of it would slip under the edge of the bone, shaping it carefully and finally springing it into place. It seemed to support the dura very well, and to be held nicely in place between the dura and the edge of the bone.

Six weeks later we made a post-mortem examination and found the plate in situ and the tissue above it in such condition as to lead us to believe that it will be a reliable method of closing openings in the skull when osteoplastic flaps cannot be made. I hope Dr. Mudd will soon describe the procedure in greater detail.

DELIRIUM GRAVE.  
A CRITICAL STUDY, WITH REPORT OF A CASE WITH  
AUTOPSY.

BY  
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Although familiar clinically for decades and even centuries of medical research and observation, no single type of mental disease, in all the literature of the subject, presents such confusion and chaotic indefiniteness of individual conception and description as the affection which forms the subject of this paper. Scarcely two alienists of to-day are in agreement as to material details, a fact which seems the more remarkable in that the clinical entity at least seems to be both distinct and clean cut. A most suggestive and convincing evidence of this confusion in alienistic opinion as to the nature and significance of the disease is to be found in the nomenclature, which is exceedingly variable: Delirium Grave (Spitzka, Gray); Acute Delirious Mania (Percy Smith, Peterson and others), Acute Maniacal Delirium (Maudsley, Schule); Grave Mania, Bell's Disease, Hyperacute Mania (Mann); Acute Delirium (Wood); Phrenitis, Typhomania (Luther Bell, A. Hamilton); Specific Febrile Delirium (Dercum); Acute Confusional Insanity (Rohe, Brower); Collapse Delirium (Kraepelin); Acute Delirious Paralysis (Reger, quoted by Rohe), and Phrenimania (Rusk), are all terms which have been employed to describe the same disease. By most French authors the term *Delirè Aiguè* is used. Clouston is the only alienist of note who does not recognize it as an entity, terming it simply a third stage of mania. Regis is vague and unsatisfactory in a very scant reference to the subject. Ford deprecates its



acceptance as an insanity altogether, believing that it should be classed among acute brain affections as a meningo-encephalitis. H. C. Wood is of somewhat the same opinion, believing the condition to be essentially a periencephalitis. Chapin, by what must have been an oversight in proof reading, makes it synonymous with Furor Transitorius. The term Delirium Grave seems to me preferable for many reasons. It is terse and distinctive, and is symptomatically significant. As a broad generic term, the Phrenomania of Rusk has much to commend it.

In one detail only is there absolute unanimity of opinion. All authors, without exception, are agreed that the disease is very uncommon. Indeed, in certain instances, even in elaborate textbooks, the necessity of borrowing clinical examples is obvious. The relatively large series reported by Krafft-Ebing (forty-five cases) and by Christensen ((thirty-three out of 1,800 asylum admissions) are explained in a study of the individual cases, especially as regards causation and symptoms. Alcoholism, trauma to the skull, acute infections and sunstroke are very common causes of ordinary acute mania, more or less violent, while vomiting, intolerance of light and sound, uncertainty of gait and contracted pupils, described as symptoms in some of Krafft-Ebing's cases, certainly suggest meningitis rather than the disease we are considering. Bianchi and Piccino, covering a period of several years, report only eight cases, Jessen five, and Berkely found three cases only among 960 admissions. H. A. Tomlinson, Medical Superintendent of St. Peter's Asylum, Minn., reports twenty-three cases of Acute Delirius Mania during a service of eight years. Babcock, as a result of investigation, reports a difference in asylum statistics as to the ratio to admissions in cases of Delirium Grave of from one-seventh of one per cent. to 47/10 per cent. This enormous variation he correctly, I think, explains upon a basis of biased diagnostic viewpoint.

*Etiology.*—As in nomenclature, so in the etiology there is wide diversity of opinion. All authors, with the exception of Tomlinson, Coston and Krafft-Ebing, are agreed that the affection is peculiar to women, and that the period of greatest susceptibility is between the ages of twenty-five and forty-five. Morel, quoted by Maudsley, cites a case, however, typical in every respect, ex-

cept in recovery, occurring in a young girl, eleven years old. In Christensen's series of thirty-three cases, twenty-five were women, the oldest sixty-five, the youngest twenty-one. Krafft-Ebing's patients ranged in age from twenty-seven to forty-seven, and of the forty-five twenty-three were women. Of Tomlinson's cases twelve were males, eleven females. Coston says there is no distinction as to sex. Spitzka, Savage, Smith, Gray, Mann and others consider heredity as of distinct predisposing importance. Coston says heredity is not a factor. As I have intimated, the immediate exciting causes as cited by different observers, are both numerous and variable. Spitzka, Smith, Maudsley, Gray, Tomlinson, Savage and Chapin emphasize the importance of emotional strain, mental shock and distress, as most active and constant causative factors. Schule adds extreme physical pain. Laverand cites a case caused by fright at a spiritualistic séance, while Berkely, Wood, Hurd, Dercum, Briand, Rohe and others believe that a toxemia or infection is of primary, if not essential, importance. As elsewhere stated, the etiology in Krafft-Ebing's series included sunstroke, skull trauma, the climacteric and alcoholism. In a case cited by Percy Smith, the affection was preceded by exhaustive dysentery. In Morel's case the disease developed immediately upon the sudden disappearance of a skin affection, while Maudsley's patient had scarcely recovered from an erysipelas when attacked with Delirium Grave. Spitzka calls especial attention to the etiological importance of the puerperal state, while Regis believes the affection to be especially related to alcoholism, general paresis and puerperal sepsis. Typhus and typhoid fevers, or other prolonged infections may be followed during convalescence by Delirium Grave, according to reported observations. Simpson cites a case due to grippe. Blandford says the condition may succeed an epileptic attack. It seems quite evident that two groups etiologically must be recognized, one of infectious or traumatic origin, with more or less gross or organic structural damage; the other representing the composite and somewhat indeterminate resultant effects of hyperactivity of cell function from non-toxic conditions dynamic or nutritional.

*Symptomatology.*—Excluding the intoxication types, which include the post-febrile, puerperal and alcoholic cases, and also

those due to sunstroke, trauma and other similar etiological factors, the clinical picture is quite distinct and constant. The patient, almost invariably a middle-aged woman, and, if a male, of the feminine mental type, following some severe mental shock or strain or prolonged excessive mental worry or anxiety, suddenly develops an acutely hysteromaniacal condition with violence, destructiveness, vasomotor disturbances and incoherence. In a few hours or a day or two a remission occurs, sometimes so radical as to restore the patient temporarily to the normal. After a varying interval, rarely more than a few hours, the maniacal excitement recurs and is peculiar in its terrific, overwhelming degree. The most intense mental and motor excitement appears, and the patient presents the picture of a maddened animal. All restraint is lost in speech and action. Vile, obscene, usually boastful and lascivious speech, destructiveness, intense motor restlessness, absolute insomnia, total anesthesia and analgesia, and absolute refusal of food are characteristic. Within a day or two relaxation of the sphincters occurs, followed by incontinence of urine and feces. and if the temperature be taken it will be found one, two, or even five degrees above normal. Wide and inexplicable and utterly erratic fluctuations occur in the temperature; the pulse varies, also, widely and without immediate ascertainable cause. Hallucinations and delusions appear, usually related to the visual sense. Strange or familiar personalities arise. Scenes connected with the original worry or shock are re-enacted with exaggeration and insane amplification. Sexually expansive delusions are common. Masturbation in gross shamelessness may be practised, or the doctor or bystander may be solicited with utter disregard for circumstances. Speech is loud, language violent, blasphemous and obscene, and yet a certain connected sequence, almost coherence, may occasionally be observed. Time, place and circumstance are however, usually completely lost, and the picture is that of a raging beast. Again and again transient remissions may occur, but it is to be noted that they become less frequent, shorter and less complete. The temperature remains above normal, and various evidences of the strain and damage to sensory, trophic and motor centers may appear. Speech may become indistinct, convulsions may occur, strabismus and other paralysis or pareses may develop;



alopecia, degenerative atrophy (Spitzka) and even lesions of the skin and bones have been noted. Emaciation is sometimes rapid from malnutrition, followed by exhaustion and death within a few days, or, at most, a week or two.

By far the best clinical description of the disease is that given by Spitzka. Indeed, so accurate is his conception and delineation as to warrant the permanent and distinctive association of his name with the disease in question. Coston is also to be congratulated upon the terse accuracy with which he clinically defines it as "a very acute febrile disease of the brain, usually fatal, attended by wild delirium, hallucinations and great disturbance of motor functions." Rohe, Brower, Kraepelin and others, on the one hand, are conspicuously vague and indefinite and even misleading in all reference to the subject. Mann's paper is conservative and of decided practical value.

*Pathology*—It is upon the pathological findings that we are able to reach a positive and convincing basis upon which to clear up much of the confusion attaching to the subject. At least two fundamentally different, though symptomatically similar, conditions of disease have been confused under one, or, rather, many names. The one is obviously and positively organic, with a variable, but always demonstrable pathology, essentially inflammatory, due to toxines, infection or trauma, the lesion varying from gross meningo-encephalitis to limited lepto-meningitis or arachnitis. For this group I would suggest the term *Pseudo Delirium Grave*; or, better still, *Acute Specific Febrile Delirium (Dercum)*, or *Symptomatic Maniacal Delirium*. The other group is represented by a pathology which, so far as interpreted, is negative, the findings indicating simply nutritional or dynamic changes without adequate or other than conjectural explanation either as to their etiological nature or pathological significance and interpretation. I would suggest the restriction of the term *Delirium Grave* exclusively to this second group. Kazowsky, one of many who urge that *Delirium Grave* should not be considered a distinct entity, is refuted in argument by a proper analytical interpretation of his own evidence. He reports two cases, with autopsy, both representing gross pathological changes, tumor of the cerebellum in one and general sepsis in the other, both patients being males.

Neither case should have been described as Delirium Grave, acute violent delirium being present as one only of many other symptoms in each case. I shall not burden you with details of numerous other autopsies, since the criticism would be identical. The appended bibliography contains several such reports, and from them it is easy to believe, and indeed to prove, that many cases of meningitis, of infectious febrile delirium, and of toxic or traumatic encephalitis have been reported as examples of delirium grave.

*Diagnosis.*—It is difficult to conceive of a mistake in diagnosis in the presence of a typical example of the disease. Sudden, furious maniacal delirium, with violence, destructiveness, fever, active vasomotor and sometimes trophic disturbances, vicious insomnia, refusal of food, incontinence of urine and feces, incoherence in every direction, with repeated remissions, with exhaustion, collapse and death in a few days, or a week or two, occurring in a woman at about middle life, without assignable cause, except in some severe mental strain or stress, could not well be mistaken for anything else. Certain unusually acute and violent examples of ordinary mania may, however, prove temporarily confusing. In ordinary acute mania the violence and exaltation, however extreme, is always somewhat systematized; there is little if any fever, the destructiveness is purposeful, as a rule; the speech more or less coherent; there is little anesthesia; the sphincters are not usually involved, and there is not the same tendency to rapidly fatal collapse, with dry skin, scanty urine, absolute refusal of food, absolute insomnia, sordes on the teeth, and the low typhoid state of the second stage (typhomania). Remissions are also less common.

In delirium tremens there is the history of alcoholic excess, the tremors, the gastric disturbance, the peculiar hallucinations, (usually visual), the general asthenic state, and the more or less coherent delirium. In meningitis the symptoms indicating organic focal damage are distinctive: Retracted head, tache cérébrale, vomiting, low muttering delirium, pupillary symptoms, and usually motor paresis. Post-epileptic mania, while furious at times, rarely lasts over a day or two, and is usually a matter of a few hours, and rarely ends fatally. The same is true of Furor Tran-

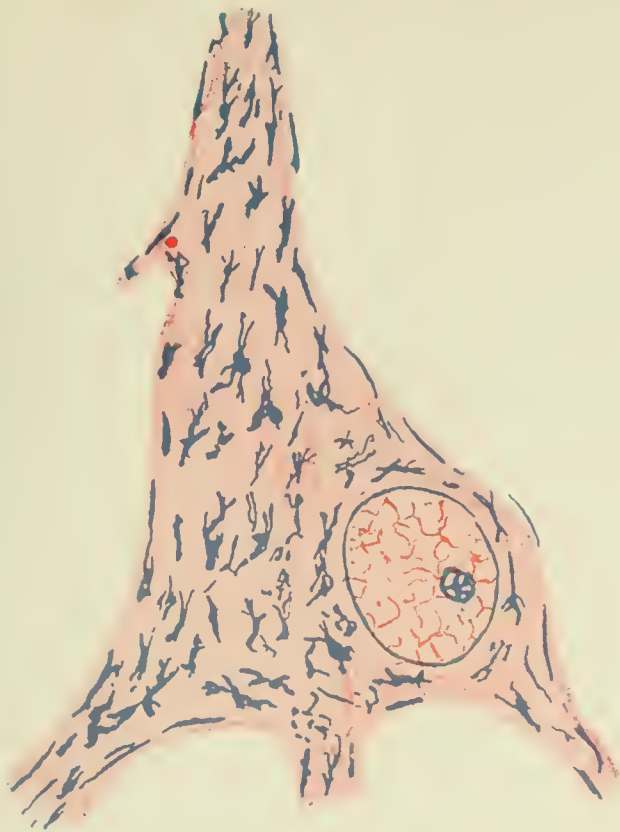
sitorius, believed by many to be a sort of maniacal equivalent of an ordinary motor epilepsy. The delirium of typhoid fever, and certain forms of pneumonia, may occasionally prove temporarily confusing. This is peculiarly true of the fulminant pneumonia, noted in certain epidemics of grip. The concomitant physical symptoms of the dominant disease are sufficient usually to clear up the diagnosis readily. Coston gives elaborate data as to differential diagnosis, especially from mania, in a paper quoted elsewhere.

*Prognosis.*—The disease is of extremely grave prognosis. Spitzka states that complete recovery never occurs, and that death is usual. In this opinion nearly all writers concur. Rohe, who describes the disease under the term Acute Confusional Insanity, announces 75 per cent of recoveries! Easily explained by the obvious inclusion of very many cases which are acute, recoverable, toxic manias, as well as cases of confusional insanity of (Chaslin) utterly and radically a different affection. The same explanation applies to Krafft-Ebing's rather optimistic prognosis. Blandford gives a mortality of one in three, which is highly favorable as compared with nearly all other authors. Death occurs, as a rule, from exhaustion. Those who escape death pass into a state of more or less marked dementia, which is progressive. Transitory remissions should not deceive one as to the final outcome. I have found no instance in the literature of a second attack.

Guiciardi, in a series of eleven cases, reports five recoveries, four dying and two passing into a terminal dementia. Of the series of eight reported by Bianchi and Piccino, only one autopsy is recorded, but whether this fact is to be interpreted as of prognostic significance or not is not clear. The prognosis in the non-organic cases is statistically worse than in the organic.

*Treatment.*—The treatment should be founded broadly upon the basis of combined etiological and pathological findings. Efforts towards helpful treatment would appear at best to be an almost thankless task. From an etiological standpoint overwhelming importance should attach to the obvious cause in individual cases. It should not be forgotten, however, that, as a rule, in nervous and mental disease the primary exciting cause is relatively unimportant as affecting either prognosis or treat-





Cell from Ant. Frontal Region. Zeiss.  
1-12 Oil. Apochromatic lens.



Cell from Sup. Parietal Region.  
1-12 Zeiss, Oil. Apochromatic Lens.



Purkinje Cell—Showing Vacuolation  
Granular Structure. Zeiss 1-12 Oil  
Apochromatic Lens



Cell from Motor Region. 1-12 Zeiss  
Oil Apochromatic Lens.



ment in a controlling way. Organic damage is permanent, and central cells once destroyed are not regenerated. Even in functional disturbance a habit tendency is easily established, as witness the neuroses, and, once established, is not easily overthrown. Removal of the cause is rarely if ever alone sufficient to produce a cure.

Numerous plans of treatment have been suggested for this affection, but without material effect upon the grave prognosis. Ergot, historically associated with the therapy of meningitis, is much lauded by Krafft-Ebing; but there is little to show that its effect has been curative in the hands of others. Gray recommends quinine in twenty-grain doses. Quinine has worked empirical wonders in neurology, but its place here is as yet purely experimental. Some plan involving the principle of anti-intoxication medication appears to be most positively indicated. Venesection in plethoric cases, with subsequent transfusion either of blood or saline solution, isolation, absolute physical suppression with the straight jacket, if necessary, with forced nutrition, active eliminant medication and symptomatic, sedative drugging with hyoscine, morphine, or some of the more powerful hypnotics, would appear to be rational at least. Serum therapy may find here a fruitful field. All drugs, as far as personal experience goes, prove disappointing. In my patient, hyoscine pushed to the extreme of danger, with trional and sedatives in heroic doses, failed of even symptomatic results. Morphia was equally disappointing. The field is one for legitimate experimentation, which seems to me to promise most if conducted along the lines of either neutralizing sera or active antisepsis.

In presenting the following case history, I wish to anticipate the criticism of a too prolix elaboration of detail by the defense that the personal equation of the patient and my intimate knowledge of collateral facts from many years of intimate acquaintance, are in this instance peculiar and extraordinary, and possibly may prove of exceptional value in helping towards a broad conception of the generic disease type.

Mrs. C., age forty-five, m., two children; stout, flabby, adipose physique; rather pale complexion; features gross and sensual. A



brother and an aunt died insane; a sister is a hunchback; otherwise the family history is normal. This patient had been under my care from time to time for a number of years for various ills, chiefly functional nervous and gouty disorders, originating in or aggravated by a fretful domestic situation, plus dietetic indiscretions and excesses. The moral life of the patient was such as to involve continued self-reproach and much worry and regret. Her excesses, especially as regards stimulants, were in large measure the outcome of this moral situation, there being no inherent or intrinsic predisposition. While representing quite a decided animal type in physique and features, as well as in appetites, desires and a deficient self-control, she was of an unusually intelligent type, and was possessed, moreover, of many esthetic appreciations, as shown in the handsome and tastefully selected furnishings of her home. Born humbly and in poverty, she lacked both education and childhood culture. Marrying a man of wealth, she, through travel and association and ambitious aptitude, largely overcame both defects. Inheriting through the death of her husband this wealth, she, for a year or two, lived a life of rather dissipated Bohemianism, but not in extreme degree. Soon after her husband's death she established relations with a well-born, highly cultured man, who was none the less a roué of the extreme type, who had run the gamut of Bacchanalian experiences, including syphilis. Within a year she became pregnant and a child was born, apparently healthy. This child, now 11 years old, continues free from evidences of inherited syphilis. Later another child was born with no signs of specific taint, although meantime the father had begun to manifest unmistakable symptoms of cerebral syphilis, later developing typical parietic dementia. He still lives, but is a driveling dement with widespread pareses and evidently very near the end. I was never able to detect any evidence whatever of syphilis in the woman, possibly due to protective treatment carried out during her pregnancies. The effect of her personal domestic relationship, the infectiousness of the nervous atmosphere in which she lived, with this parietic husband, was much more serious. For five years he showed a constant irritability, with tempestuous explosions almost every day. Impractical and visionary primarily, he began more and more to assume the grandiose mentally, and was filled with schemes for money-making, many of which he attempted. He became involved, then hopelessly in debt, then tied up in numerous litigations with creditors, who, knowing of his wife's wealth, tried by all the subterfuges and blackmailing schemes known to unscrupulous lawyers to inveigle her into a position of responsibility. For several weeks previous to her final illness she had been subjected daily to this harrassment. Hackled and

badgered on the witness stand, pestered by lawyers' clerks and subpoena servers, her mail filled with threatening letters, all this time living in the constant presence of her paramour, the cause of it all, whose whining irritability and now childish complaints and bewailings were as continuous as time, a situation existed which could not well have been worse in its pregnant possibilities of evil. On December 10 my patient had a consultation with her attorney at his office, to which she drove alone and apparently in good relative condition. The interview was stormy as a result of the lawyer's discovery that she had withheld important information from a fatuous desire to shield her husband. She became much excited and had what seemed to be a severe hysterical attack. Within an hour she had recovered and drove home unattended. The day following I was called to see her in what appeared to be a similar attack. She responded to symptomatic treatment and for an hour discussed coherently and with perfect intelligence her affairs, though somewhat excited in manner and speech. The same evening she had another and similar attack with again a return to the normal in an hour or two. Twenty-four hours later, having been meantime in normal condition, she suddenly developed a most violently explosive maniacal delirium, shouting at the top of her voice, screaming, tearing her clothing into shreds, breaking the furniture in the room, walking the floor and talking, when not screaming, incessantly. I found her in this condition, arriving shortly after its development. Her face was almost purple in its veinous turgidity. I had seen it present a somewhat similar appearance in former years when in an outbreak of violent temper, to which she was subject. She recognized me, and after half an hour or so, became somewhat calmer, but was still greatly excited, talking incessantly and in a loud voice. Her language was grossly profane, obscene and shameless beyond description. She talked chiefly of her persecutors, her innocent children, and of the vengeance which she intended to visit upon her enemies. One moment she prayed and the next was filled with blasphemous filth. Much of the time she walked the floor with dramatic grandiose stride, her clothing in shreds, and her person exposed almost in the nude. Under hyoscine hydrobromate 1-50 hypo., repeated in two hours, she became comparatively quiet and was induced to take medicine by mouth and a good full meal. She was given fifty grains of bromide with twenty of trional, preceded half an hour or more by ten grains each of calomel, jalap and soda. This period of relative calm continued for nearly three hours, during which she slept for almost half an hour. Immediately on awakening she became violent and destructive as before, and the two nurses in charge were utterly unable to control her. The room had been emptied of all

furniture, notwithstanding which, in her violence, she bruised and injured her limbs and face repeatedly. At the time and subsequently under tests she appeared to be almost completely insensible to pain. The day following, again under hyoscine as before, a period of calm was secured, and again bromide grs. 120 and trional 30 were administered an hour after the second injection of hyoscine. As a result she slept for nearly two hours, respirations during sleep being normal. Immediately on awakening, as before, her delirium began and its intensity and violence were almost indescribable. From this date on to the fatal termination of the case, on the 16th day, her delirium was continuous, only varying in degree. Her violence and destructiveness, her obscene, blasphemous speech, her indecency of conduct, her obstinate insomnia and refusal of food, were all almost continuous. From the sixth to the twelfth day she slept less than two hours in the twenty-four, and had to be fed by nasal tube. Occasionally she would accept milk, sometimes swallowing a full tumbler with ravenous avidity, again spitting it into the face of the nurse. A noticeable peculiarity during the entire attack was an almost continuous expectoration. Another noticeable feature of the case was that her speech was always distinct in articulation, and although irrational, nearly always in connected, coherent sequence. Still another remarkable fact noted was her invariable recognition of me upon the occasion of each visit. Sometimes she would spontaneously address me by name, at other times she would call my name when asked to do so. To many questions, even in the advanced disease, she would give responsive answers. Much of the time she suffered from active hallucinations, chiefly visual. She saw her enemies in grotesque disguises, often dressed in red. A vision of the Virgin was quite common; sometimes it was her deceased husband, again her children. Scenes in court and interviews with lawyers would be re-enacted. Her violence continued unabated. A massive chandelier was pulled to the floor, injuring one of the nurses and filling the room with gas, which, but for the presence of mind of another nurse, might have ended tragically. It became finally necessary to employ six nurses, two to each shift of eight hours, and to tie the patient to the bed. Feeding was, of course, difficult, and possible only through the nasal tube. The bowels were kept active with croton oil and enemata. Beginning with the 10th day, incontinence of urine (rarely more than a pint or two daily) developed. A few days before her death incontinence of feces with diarrhea occurred. The pulse was throughout of high tension and ranged between 110 and 130 to 140. The temperature was taken irregularly and by axilla, except on two occasions, when a rectal temperature showed 103° each time. By axilla it rarely exceeded 102°, but was never ob-



served below 100°. No disorder of motility except of sphincters occurred at any time, nor was there at any time any disturbance (except hallucinations) of any cranial nerve function. The pupils varied in size probably from medication in part, and the deep reflexes also showed considerable variation from time to time. No trophic changes were noted, although vasomotor disturbances were actively manifest. An occasional staggering gait during the earlier part of her illness was noted, but this I have often observed after full doses of trional, and to this cause I attributed it. At no time was there any tendency to convulsion or syncope, not even as fibrillary twitching. Dr. Spitzka saw the patient with me on the 12th day, and by his advice morphia was substituted for the hyoscine, which had ceased to act. Under half grain doses of morphia every 3 or 4 hours, for a day or two, the patient secured from one to two hours' sleep in the twenty-four, but, as with the hyoscine, trional and other hypnotics, she invariably awoke in immediate violent delirium. It became necessary to increase the morphia to a grain or more. On the 15th day she was unusually violent, her voice strong and full, articulation distinct and clear, consciousness as before. On the 16th she suddenly collapsed, the pulse became thready and uncountable, breathing stertorous and labored, and some three hours later the patient died comatose. Four hours later, assisted by Dr. MacPhee, who had aided me in attending the patient, I removed the brain. The pathological report herewith was made by Drs. MacPhee and Larkin:

Mrs. C.—Partial autopsy; confined to head only; made four hours' post-mortem. Body of a well developed female; no post-mortem rigors or lividity or external signs of injury.

*Brain and its Membranes*:—The dura mater is normal; shows no internal hemorrhagic meningitis. Examination of sinuses shows no pathological change. The pia mater is markedly edematous and blood vessels show marked injection. The excess of fluid in the pia mater somewhat alters its normal color, giving it a slightly hazy appearance. On separation of the pia from the brain cortex we find no adherence to the superficial cortical surface or appreciable microscopic change in the convolutions. The capillaries of the brain cortex show marked distention and injection, but no petechial hemorrhages are to be observed.

The lateral ventricles contain clear fluid which has but very moderately distended the cavities. The choroid plexus is edematous, deeply congested from excess of blood in the capillaries. There is no other appreciable lesion.

Dissection of the brain shows no macroscopic pathological change, the tissue being firm and both white and gray matter being normal. The examination of the superficial cortex shows

well developed cerebral convolutions, the only change being the marked congestion of the capillaries; edema of the pia mater, and connective tissue around the larger blood vessels.

Portions of the brain were removed and immediately placed in 10 per cent. formalin for microscopical examination by Nissl's method.

From the cortical portion of the brain portions were taken from the following areas, viz.,—(1) Superior frontal region; (2) inferior frontal in front of the pre-Sylvian fissure; (3) operculum behind the pre-Sylvian fissure; (4) anterior central convolution at its lower third; (5) anterior central convolution at the paracentral lobule; (6) superior parietal region; (7) superior temporal region; (8) inferior temporal region; (9) inferior parietal region; (10) cerebellum.

The microscopical technic needs only to be briefly summarized. After thorough hardening in formalin and alcohol sections embedded in celloidin were cut and examined by Nissl's method; Delafield's hematoxylin and eosin being used for changes in the blood vessels and connective tissue of the membranes.

#### MICROSCOPIC EXAMINATION OF DIFFERENT PORTIONS FROM THE BRAIN CORTEX.

1. *Superior frontal convolution*:—Here the larger-sized ganglion cells show marked polychromatophilia, ragged outline of the cells; swelling of nucleus; but no eccentricity. Intense congestion of the capillaries.

2. *Inferior frontal region*:—The remains of the chromatic substances show as a fine granular deposit with eccentricity of the nucleus and outline of cells ragged and irregular.

3. *Operculum*:—The large-sized ganglion cells are "dust-like"; the arrangement of the chromatic bodies is lost. The outlines of the cells are irregular, the nucleus eccentric and commencing vacuolation of the cell is apparent.

6. *Superior parietal*:—The chromatic network of the arkyochrome is very granular and irregular, the cell showing distinct alteration in its chromatic network; eccentric and swollen nuclei.

7.-8. *Superior and inferior temporal*:—Sections here show an advanced vacuolation of the cells; loss of nuclei even in sections cut 10 mm. thick; ragged and irregular contour; and in those cells which are not so markedly changed the nucleus contains fine deeply staining dust-like particles obscuring the intranuclear network.

9. *Inferior parietal region*:—The meshes of the archystichochromes were widened, the chromatic substance dust-like, the cell

pale and bleached, its outlines irregular and nucleus eccentric.

10. *Cerebellum*:—Purkinje's cells are but mere shadows. No traces of chromatic substance seen; nuclei often obscured and shrunk; dendrites pale and show fading chromatic bodies.

Examination of the pia mater shows simply edema with a few scattered polyhedral cells in its meshes.

The blood vessels show extreme distension but no perivascular infiltration or appreciable pathological change in the lumen.

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PARALYSIS AGITANS: SOME CLINICAL OBSERVATIONS  
BASED ON THE STUDY OF 219 CASES SEEN AT THE  
CLINIC OF PROFESSOR M. ALLEN STARR.

BY

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Since the year 1888 there have been examined and recorded in the neurological clinic of Prof. M. Allen Starr, of New York, 219 cases of paralysis agitans. Of this number about one-third have been seen and personally examined by the present writer.

The number of cases exceeds very much any similar series<sup>1</sup> known to the writer, and as such has a statistical value which may help to elucidate some facts in regard to this syndrome, so obscure as to its etiology and pathology.

In drawing conclusions from this material, several facts should be borne in mind. While the series includes patients of many occupations, the majority came from the humbler walks of life, thus differing from the patients seen in private practice. Observations were rarely made on cases in the advanced paralytic stages as ambulatory patients only were able to present themselves for treatment. The dispensary patient is notably unsatisfactory for prolonged observation, as but few of those suffering from chronic disorders are regular in their attendance or can carry out the hygienic measures so important in treating maladies of the type under discussion.

ANTECEDENTS AND CASUAL FACTORS.

Paralysis agitans is nearly twice as frequent among men as among women. Gowers found five men to three women. Of our 219 cases 139 were men and 80 were women, about seven men

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<sup>1</sup>Gowers' observations in the last edition of his book are based on the study of 115 cases seen in private and hospital practice.

to four women. The disease rarely makes its appearance before the thirtieth year. Lannois reports one at nineteen, Berger one at seventeen, Buzzard one at twenty-one, and Huchard one in a child of three years. Of our cases, the earliest onset was in a male, twenty-two years old; the latest was in a man seventy-eight years old. Of the women, the youngest was thirty-three and the oldest seventy-two when the disease commenced. Forty per cent. began in the decade between fifty and sixty, 25 per cent. began between forty and fifty; 20 per cent. between sixty and seventy; nine cases first appeared in subjects above 70 years of age.

Age of onset	Under 30	30-40	40-50	50-60	60-70	Over 70	Unre- corded	Total
Male	2	10	38	49	30	5	5	139
Female	0	9	16	39	12	4	0	80
Totals	2	19	54	88	42	9	5	219

Paralysis agitans, therefore, belongs not strictly to old age, but rather to the presenile degenerative period.

The civil condition, as determined by our data, was as follows:

Civil Condition	Married	Widowed	Single	Unrecorded	Totals
Male	90	12	9	28	139
Female	31	20	8	21	80
Totals	121	32	17	49	219

As far as we can determine, occupation seems to have no bearing on the question of etiology. The annexed table shows a list of the occupations of the patients of our series.

Direct hereditary transmission can rarely be traced. In only 15 per cent. of Gowers' series, could such an influence be found. In only 16 per cent. of our cases could paralysis agitans be found to have existed in relatives, as follows: in mothers, six times; father, three; sister, three; brother, one, and cousin, one. Wollenberg found that in 26 per cent. of his cases there was some heredity taint of nervous disease. Collins and Muskens found direct heredity in four, and indirect heredity in four additional cases in the study of nineteen cases in which the heredity could be satisfactorily studied. Berger reports a case in which the



father and grandfather on the father's side had shaking palsy, and of four children, two sons had an incurable chorea, with epilepsy. Borgherini lays considerable stress on heredity, and re-

## MALES.

Drivers .....	7	Engineers .....	6	Band maker .....	1
Soldiers .....	1	Firemen .....	1	Telegraphers .....	1
Sailors .....	2	Masons .....	2	Preachers .....	2
Messengers .....	1	Carpenters .....	8	Tailors .....	10
Gatemen .....	2	Plasterers .....	1	Shoemakers .....	6
Watchmen .....	3	Merchants .....	7	Furriers .....	1
Postman .....	1	Schoolteachers .....	2	Janitors .....	2
Gardeners .....	2	Cooper .....	1	Waiter .....	1
Stablemen .....	2	Cigar makers .....	1	Housework .....	4
Peddlers .....	3	Factory .....	5	Salesmen .....	8
Laborers .....	21	Polishers .....	2	Clerks .....	4
Iron workers .....	4	Compositor .....	2	Actors .....	1
Blacksmiths .....	2	Carver .....	1	Unrecorded .....	7
		Rope maker .....	1		

## FEMALES.

Housewives .....	46	Cook .....	1	Unrecorded .....	4
Nurses .....	2	None .....	12	Music teachers .....	2
Seamstresses .....	7	Laundresses .....	4	Store keeper .....	1
		Ladies' maid .....	1		

ports a family in which, of nine children, three brothers and four sisters, and three children of these, suffered from paralysis agitans. Gowers reports a sister of a case as afflicted with shaking palsy; another in which the mother had the disease, and a third in which a brother had a progressive tremor during his whole life.

Other diseases noted in the parents of our patients were alcoholism in five instances; paralysis, two; neurotic, 2; rheumatism, one; phthisis, one.

The exciting causes, as assigned by the patients themselves were:

Emotion (anxiety, worry, fright).....	40
Overwork .....	14
Trauma .....	31
Exposure .....	11
Acute disease (grippe, malaria, typhoid, pneumonia)...	12
Chronic disease (rheumatism 4, syphilis 2).....	6
Habits (alcoholism 7, tea and coffee 3) .....	10
Poisoning (lead 1, carbolic acid 1).....	2
Menopause 1. Confinement 1.....	2
Sunstroke, insomnia, abscess, piano-playing, (each 1) .	4
Unassigned .....	87

Total 219

The factors which stand out prominently here are those of emotion and traumatism. Among the emotional antecedents are included anxiety, shock, sorrow, grief, severe fright. A few instances may be quoted. An illicit distiller had his plant confiscated by United States officials; worry due to severe illness of mother; a drunken son; loss of children; shock following drowning of husband; frightened by lightning, tremor appeared first in eyeball and eyelid, later became general. These are sufficiently numerous to warrant us in considering them as having a real bearing on the development of the disease. Traumatism often involves an emotional shock, and it is possible that emotion may be the more important factor in many of these cases.

Physical injury is so frequently and closely associated with the onset of paralysis agitans as to impress us with its importance as a casual factor in many cases. Walz collected twenty-seven cases in which trauma had an undoubted antecedent relationship, and twenty-seven other cases which apparently, but less distinctly, had a similar cause. These include observations by Westphal, Charcot, Grawitz and others. As instances of a direct traumatic antecedent, the following may be cited from our records: Left shoulder injured in a runaway; soon after tremor began in left arm. Amputation of finger of left hand; tremor in this hand immediately followed; then extension to the other extremities was rapid. Amputation of right thumb; tremor soon commenced in right hand. Injury to lumbar region of back; tremor of both legs followed in a short time. Broke right wrist; three years later tremor appeared in right hand. Cellulitis of right hand; tremor of same hand immediately followed. Fell from wagon and dragged 100 feet. Fracture of right leg; tremor began in right hand.

Sudden and chronic exposure and prolonged fatigue have also been considered as possible causes; here also the emotional effect should not be overlooked. One of our patients attributed his illness to exposure in the blizzard of 1888; another to a fall from a boat, he was in the water twenty minutes.

In twelve of the cases the assigned cause was an antecedent acute infectious disease; these included typhoid fever, pneumonia, grippe and malaria. Lannois has reported one case following

measles; Fry, one after typhoid fever and influenza; Dana mentions as a possible causative element "a general toxic influence of endogenous origin."

Syphilis was admitted in only two of our cases; two cases following syphilis are reported by Oppenheim.

It is clear that we are far from solving the real etiology of the disease. It is noteworthy, however, that of the factors which we have reviewed, all have in common a general weakening influence on the organism, and particularly on the nervous system. Prolonged emotion, traumatism, acute and chronic disease, alcoholism and other toxines, exposure and overwork have in this sense a settled and unquestioned influence. Further than this, for the present, at least, we cannot postulate their casual relationship.

#### SYMPTOMS.

*Tremor* was the symptom which was first noticed by most of our patients, and for which they applied for treatment; it was observed in 203 cases of 207 in which a record was kept of this symptom. In four instances tremor was absent. With few exceptions, the determination of the part of the body in which the tremor first appeared depended upon the statement of the patient, since, as a rule, the tremor had extended to some other part before the patient came under observation. The part in which the tremor first appeared was as follows:

Part first affected	Male	Female	Total
Hand right	33	24	57
left	34	15	49
both	14	2	16
Arms right	7	9	16
left	8	5	13
both	4	2	6
Foot right	3	1	4
left	1	2	3
both	1	1	2
Leg right	4	4	8
left	3	2	5
both	1	—	1
Arm and leg right	4	1	5
Arm and leg left	2	1	3
Head	3	2	5
Head and both hands	—	1	1
General	1	4	5
Absent	3	1	4
Unrecorded	13	3	16
Total	139	80	219



The patient usually made the statement that the tremor commenced in the hand or foot; but in several of our cases they were quite clear in indicating the digit in which the tremor began. In one the tremor first appeared in the thumb of the right hand; in two in the thumb of the left hand, and in another in the index finger of the left hand.

The onset of the tremor was seven times as frequent in the upper extremity as in the lower:

	Upper Extremity	Lower Extremity
Male	100	13
Female	57	10
Total	157	23

and somewhat more frequent upon the right side of the body:

	Right Side	Left Side
Female	39	25
Male	51	48
Total	90	73

In three instances the tremor commenced in the head.

The rapidity of the extension of the tremor varies extremely. A number of cases showed an involvement of another extremity in a few weeks; while in many of the cases the tremor was confined to the part affected from one to three years. One instance, a night watchman began to have tremor in both hands when thirty years old; this was a classical case, with rigidity, retropulsion and lateropulsion; there was no extension of the tremor, however, for twelve years. In another case the tremor commenced in the left hand, and when first seen, two years after the onset, all four extremities were involved in the tremor; the patient said the tremor had become general in one year.

The extent of the tremor was as follows:

Limited to one Extremity	33	In arm 32, in leg 1.
One Extremity and Head	5	All in arms.
Diplegic	41	All in arms.
Diplegic and Head	14	All in arms.
Hemiplegic	27	Right side 12, left side 9, unrecorded 7.
Hemiplegic and Head	1	Began in arm 16, leg 5, unrecorded 7.
3 Extremities	18	
3 Extremities and Head	5	Began in arm 17, in leg 6.
4 Extremities	26	
4 Extremities and Head	35	Began in arms 41, in legs 8, in head 3.

To determine the order of the advance of the tremor, a further analysis was made of the cases in which three extremities were involved in the tremor. Seventeen of these began in the hand, six began in the leg. Of those beginning in the hand, the tremor next appeared in the leg of the same side in sixteen instances and then in the other arm; in one case it extended to the other arm and then to the leg of the side first affected. Of the six cases which commenced in the leg, in four it extended to the arm on the same side, and then to the other leg; in two cases the tremor next appeared in the other leg, and then in the arm of the side first affected. It would therefore appear that the advance was about equally divided between the diplegic and hemiplegic types.

Tremor was noted in the tongue in nine instances; in the lips in four cases; once at the angle of the mouth. Twice the tremor involved one-half of the face. In one case there were contractions of the muscles of the neck, causing a rotary movement of the head. In another the tremor assumed the form of a slight pronation and supination of the right hand and forearm. In two cases the tremor was intentional in character; both were otherwise typical cases of paralysis agitans; one of these had existed eight years. Tremors of this character have also been recorded by Gerhardt. Ordinarily voluntary motion diminishes the amplitude of the tremor rather than abolishing it; as has been pointed out by Féré, this is proved by graphic tracings of the tremors.

In one case a male telegrapher, forty-five years old, was frightened by a flash of lightning; tremor followed immediately "in the left eyeball," then it extended to the eyelids of the same eye; later to the left upper extremity, and gradually became general. Instances of tremor of the orbicularis palpebrum have also been reported by Gowers and Wollenburg.

*Rigidity* was observed in 142 cases; in 138 of these tremor was also present; in four tremor was absent. Tremor had existed for periods from eight to ten years in several of our cases before the appearance of rigidity. The four cases without tremor all were clear cases of paralysis agitans; one of these had existed for one year, and was watched subsequently for ten months without the appearance of any tremor. Schlapp and others have reported cases without tremor.

In sixty-five cases tremor was present, but no rigidity. Swallowing was difficult in only one case.

*Contractures* were noted in twenty-eight cases.

The *tendency of the patients to fall* was carefully examined into in 173 instances: it was absent in sixty-eight cases, present in 105. The number and direction of this tendency were as follows:

Latero-pulsion .....	6 cases	Pro- and Retro-pulsion.....	6 cases
Retro-pulsion .....	11 "	Pro- and Latero-pulsion.....	5 "
Propulsion .....	71 "	Retro-Pro-and Lateropulsion.	3 "

On analyzing the series to find out whether the direction of the tendency to fall was dependent upon the presence of the tremor in corresponding parts and a consequent muscular weakness, it was found that there was no association of this kind existing between these symptoms. In three cases in which there was no tremor there was marked propulsion. In one, in which there was lateropulsion to the right, tremor was present in the left arm only, while in one left lateropulsion the tremor was entirely on the right side of the body. In four others with lateropulsion the tremor was general.

The *deep reflexes* were investigated in 188 of the series; of these, ninety were normal; in thirty they were present, but diminished, and in sixty-eight they were more active than normal. In three instances there was a distinct and typical clonus of one foot; in two of these the knee-jerks were active, but not greatly increased; in one case a woman of forty, with tremor in four extremities, more evident on the left side, there was a great increase of both knee-jerks and a typical clonus of the left foot. Often the knee-jerks were unequal, the increased knee-jerk being sometimes on the side most involved in the tremor and again on the side least involved.

Argyll-Robertson pupils were present in two, otherwise typical cases.

There were definite *voice changes* noted in 120 cases. These were described as monotonous in fifty-nine, slow and measured in thirty-one, piping in twelve, feeble, weak or indistinct in fifteen, thick in ten, hesitating in seven, and in several others as hoarse, jerky, tremulous, etc.



*Pain* when present was, as a rule, not severe. The patients described them as "aching," "dull," "shifting," or "slight darting pains;" usually when present they corresponded with the part in which the tremor was most evident. A certain number complained of pain in the extremity preceding the onset of the first tremor. In two cases the patients complained of pain in the calves of the legs, while the tremor was limited to the arms; in both of these cases tremor soon afterward appeared in the legs.

The distribution of pain was:

General .....	16 cases	Arms .....	31 cases
Legs .....	20 "	Hands .....	6 "
Head .....	9 "	Back .....	7 "
Abdomen .....	1 case	Absent .....	87 "

*Paresthesias* of various kinds were present in 120 cases; these were sensations of "pricking," "numbness," "tingling," "flushing," "heat and cold;" usually the sensation was very transitory and passed quickly from one part of the body to another. By far the most common subjective sensory disturbance was the feeling of heat or cold; these were often localized in the part where the tremor was most evident, but frequently in a part free from tremor.

The distribution of these sensations was as follows:

Sensation of Heat		Sensation of Cold		Sensations Of Heat and Cold.	
Feet	5	Feet	1	Arm	3
Body	3	Body	1	Unspecified	17
Abdomen	1	Back	1		—
Shoulder	1	Arms	1	Total	20
General	1	Hands	6		
Right side	1	Legs	3		
Unspecified	19	Unspecified	7		
	—		—		
Total	31	Total	20		

*Hyperidrosis* was complained of in fifty-seven instances; in the hands, three; body, one; head, two; neck, one; left side, one; head and back, one; feet, one; general five; not localized, forty-two. There was no definite association of the excessive sweating with the part most affected by the tremor or with the part in which the disease first became manifest.

In eighty-five cases *restlessness* was a marked feature.

In thirty of the patients the *pulse rate* was above 100; of these one had a distinct enlargement of the thyroid gland; but the character of the tremor, gait and attitude and the presence of rigidity lead us to classify it as a true case of paralysis agitans. In one instance, with a pulse rate of 120, there was an aortic regurgitation, with a fairly well compensated heart. The highest pulse rate was 132.

*Complications* were met with as follows: Digestive disturbances, seven; rheumatism, three; alcoholism, one; neurasthenia, two; trophic disturbances, one; urinary disease, six; goiter, one; arthritis, one; hemiplegia, two; hernia, one; corneal ulcer, one.

These seem to have been coincident affections, which one might easily run across in examining any 219 patients of advanced years. Several of the cases are, however, of more than passing interest. The two cases complicated by hemiplegia were as follows:

A gardener, forty-three years old, had a left hemiplegia, from which he partly recovered; two years later he began to have a tremor of the left hand. When he was first examined at the clinic three years later he had the typical attitude and expression of paralysis agitans; there was a classic tremor of both arms, with rigidity of both arms and legs. The deep reflexes were present but not increased. Remnants of his old hemiplegia were present.

A married female, fifty-seven years old, began to have a tremor of the right hand at the age of forty-seven; the tremor extended to the right side of the face, and the voice changed to a slow monotone. At fifty-two she had a complete right hemiplegia, with aphasia, from which she gradually recovered. At the time of her examination the attitude was that of a classic paralysis agitans; there was tremor of the right hand and right side of the face; the voice was slow and monotonous; there was weakness of the right arm and right leg; the deep reflexes were all lively; there was partial anesthesia of the right hand; the right leg was somewhat hypersensitive; the heart was rapid; she suffered from dyspnea on exertion. She passed large quantities of urine of a low specific gravity, containing no albumin, sugar or casts. She assured me that the tremor had not changed since her attack of hemiplegia.

Another case of interest was a woman of sixty years, who had suffered from a typical attack of paralysis agitans for six years;

tremor and rigidity were present in both arms and one leg. Of late she had been troubled by the brittleness of her finger nails; both hands were red, puffy and painful to the touch. There were no changes in the heart or blood vessels that could be discovered. This patient was seen but once.

#### TREATMENT.

The difficulties attending the treatment of cases of shaking palsy are multiplied by the impossibility of removing the average dispensary patient from his environment of emotional distress and physical deprivation. The improvement observed was mainly in those who had comfortable homes and relatives sufficiently capable and interested to free them from the stress of daily toil, worry and excitement. We can report no absolute cures, but in a number of instances the disease came to a standstill and remained so a number of years, while many times it seemed evident that the treatment employed materially modified the symptoms, such as the tremor and insomnia rendering the patient's life far more comfortable and happy.

Every effort was made to remove sources of anxiety and worry; exhausting and laborious occupations were, when possible, replaced by light, quiet work with short hours. A diet of simple, nutritious food was advised, while alcoholic drinks, tea and coffee were usually forbidden. The effort was made in each case to improve the general nutrition and strength of the individual. Moderate exercise was often found of considerable value; light occupations, like reading and sewing, often afforded an increase in the mental control so useful in a certain number of cases. Of far greater value was the systematic use of massage, passive movements and hydrotherapy; these were rarely obtainable for our patients in a sufficiently extensive and systematic manner, but in a certain number of instances massage was given at the clinic twice a week, with hydrotherapeutic measures on the other days; these cases often showed for a considerable period a marked improvement. In a number of cases electricity in various forms and by various methods was administered, but with no noticeable benefit.

Most of the drugs suggested by various authorities have been



used from time to time. None of these have consistently proved beneficial. Those which have proved of most value have been the hydrobromate of hyosine and the sulphate of duboisine; these quite regularly, for a time at least, diminished the tremor and relieved insomnia. General tonics, particularly iron and strychnine, have been of considerable service.

I wish to acknowledge Professor Starr's kindness in allowing me to make use of the clinical material.

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## Society Proceedings

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BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

January 21, 1904.

The President, Dr. G. L. Watron, in the chair.

*Brain Tumor with Astereognosis.*—Dr. E. W. Taylor reported this case.

The patient, referred by Dr. Vivian Daniel, was a man of twenty-nine, married, who had been ailing for seven months, dating from an attack of influenza. He was at that time ill in bed and made a poor recovery. He had persistent headache, chiefly frontal, at first unassociated with nausea. Four weeks before he was examined, on April 18, 1903, he gave up work on account of general weakness. Three weeks previous to his first visit numbness and weakness of the right hand developed. At the time of examination he was somewhat unsteady in walking; his eyesight was not impaired; his appetite and sleep were sufficiently good. He had lost some thirty pounds in weight, twelve in the last three weeks. The right pupil was slightly larger than the left; there was no defect in light reaction, or on accommodation. There was a suspicion merely of optic neuritis. The cranial nerves showed no paralysis; the speech was slightly thick, but there was no mental impairment; the right hand and arm were extremely weak without marked alteration in the reflexes. The sensibility of the hand was normal to painful stimuli and to contact, but showed a complete astereognosis. No object placed in the hand was rightly interpreted. The pulse was 140; respiration was rapid; knee-jerks were lively; there was no Babinski. A few days later nausea and vomiting developed, together with spasms of the right hand and arm and increased mental irritability.

Electrical examination showed nothing abnormal. Treatment with iodide was unavailing. The temperature was at this time, and had been for many weeks, elevated several degrees. A later examination showed a marked increase of the symptoms given above, and in view of the fact that physical examination was otherwise negative, operation was decided on in spite of the elevation of temperature because of the evident localization of the new growth, and also because the patient was rapidly failing.

Operation was done May 1st, by Dr. F. B. Lund. Several nodules of a hard tumor were easily extracted from the arm area, mainly anterior to the fissure of Rolando. Temperature at the time of operation was 103.5°. The patient made a good recovery from the operation; was relieved completely of his headaches; was without discomfort, excepting for the presence of a right hemiplegia. He died May 28th, slight improvement in motility having taken place during the interval. Autopsy, May 28th, showed an extremely active miliary tuberculosis, with a primary focus in the prostate. The brain, apart from the tumor, which on microscopic examination proved to be tuberculous, showed only a very slight tubercular basal meningitis. Other organs were thickly studded with miliary tubercles.

The interest of the case centers in the following points: The failure to determine the presence of tuberculosis, although it was suspected; the possibility of successful operation in the presence of considerable elevation of temperature; the localization of the tumor anterior to the fissure of Rolando, but associated with a definite astereognosis coinciding with the view of Walton and Paul; and finally the significance of the symptoms as again pointing to the sensory motor character of the Rolandic cortex, as pointed out by Dana and others.

Dr. Lund described the operation and spoke of the resulting relief of headache.

*Temporary Paralysis.*—Dr. Knapp showed a man, aged thirty-nine (39), who five years before had suddenly lost power in the left arm for about ten minutes. Since that time he has had similar attacks at varying intervals, once in five or six weeks, even two or three in an hour. When the attacks occur frequently he does not fully regain use of the arm in the interval. With the attack there is a sensation of numbness, which extends over the shoulder and chest, and sometimes over the face. Once it extended to the leg and the leg muscles were slightly affected. In the attack there is no convulsive movement, no loss of consciousness, no flushing of the face, no change of temperature and no change in the pupils. There has been no headache, vertigo, nausea, vomiting, somnolence, mental disturbance or optic neuritis. The physical examination was absolutely negative, except that after an attack there was diminished sensibility to pain, touch, motion and position in the hand. The attacks were somewhat controlled by bromide. The long continuance of the attacks without other symptoms rendered a diagnosis of general paralysis improbable. Binswanger has cited cases of epilepsy in which the attack was attended with paralysis instead of convulsion, and that diagnosis seemed probable in this case.

Dr. Webber recalled the case of a man who without loss of consciousness had sudden loss of power in one arm lasting only half a minute, so that he would drop whatever the hand held, but was immediately able to use the member perfectly. The attacks were deemed epileptic.

*Resection of the Spinal Accessory Nerve.*—Dr. Paul showed a patient 2½ years after resection of the spinal accessory nerve by Dr. Richardson, and subsequent prolonged rest for spasmodic torticollis. The muscles paralyzed by the operation have regained their tone and are under voluntary control. There is only rarely spasmodic twitching of the sternocleido, or trapezius. The result seems satisfactory.

Dr. Putnam thought that when spasmodic torticollis could be relieved without resort to operation it was preferable.

Dr. Folsom reported a case relieved by non-operative treatment.

Dr. Baldwin referred to the lasting immunity from spasm in a severe case operated upon by Dr. Richardson several years ago.

Dr. Knapp said that he and Dr. Putnam had recently seen a mare who apparently had spasmodic torticollis. The mare was out of a thoroughbred dam by a French bred coach horse, and had won various prizes. She first came in season at the age of three, and at times after that, when in season, she would try to bite her tail. She was not nervous, although she was obstinate and would behave badly if not harnessed to her liking. She showed none of the equine stigmata of degeneracy. About a year ago, possibly after exposure, she began to turn her head toward the off side, the spasm recurring several times a day and lasting two or three minutes. She has had as many as nineteen of these spasms in an hour. They are usually worse when she is in season. The spasm can be felt by a person on her back to involve the muscles of the flank and



rump, but it does not cause any change in her gait, either the walk, trot or canter. She does move her forward feet a trifle in the spasm to preserve her balance. There is no history of injury, no tender spot and no spot which seems by pressure to influence the spasm. Massage, electricity, ounce doses of Fowler's solution, and large doses of bromide and chloral had no effect. Absolute rest in a box stall had apparently made her worse. Breeding and the freedom of a paddock had been suggested. The spasm seemed to involve chiefly the levator humeri and the sterno-maxillary muscles, the analogues of the levator anguli scapulæ and the sterno-mastoid. The circular nerve of Willis, analogous to the spinal accessory, supplies these muscles in part, and in one place is quite superficial. The nerve is often divided at this point to prevent cribbing, and this operation is now proposed for this condition.

The case is apparently unique. None of the veterinary surgeons here or in New York and no stable men have ever seen anything like it. Dextler in his "Nervenkrankheiten des Pferdes" describes a facial tic in the horse and other forms of tic, but nothing like this. Rudler and Chomel (*Revue Neurologique*, XI, 541, 15 June, 1903,) describes various forms of tic in the horse, notably the "tic de l'ours" or "weaving," but no reference has been found to any condition such as this mare presents, which closely resembles spasmodic torticollis as observed in man.

Dr. G. A. Blumer was elected President of the Society for the ensuing year. He called on Dr. Dana, of New York, for the paper of the evening, on:

*"The Partial Passing of Neurasthenia.*—Dr. Dana, the writer, described the five great groups of the major psychoses or insanities, excluding the insanities from accidental and organic causes. These different groups each represent different and more or less deeper variations from the line of normal mentality, and depend upon a different degree of constitutional weakness. These great groups are the primary and precocious dementias, paranoia, the mania-melancholia psychoses, or manic-depressive insanity, including the chronic melancholia of involution, phrenasthenia, or the degenerative or neurasthenic insanities, and the exhaustion and toxic psychoses. The author's contention is that more than 50 per cent. of cases, usually called neurasthenia, can be assigned to one or the other of these groups. They are either cases in the forming stage, or they are mild and abortive attacks. Neurasthenia, so called, is often, he thinks, a *form fruste*, or a shadowy imitation, or a prodrome of the great psychoses. Thus, half of all neurasthenias would properly be called neuro-psychoses, or, if the form is preferred, psycho-neuroses. The larger part of these psycho-neuroses are probably related to phrenasthenia, which group includes the hysterias as well as the so-called neurasthenias, with doubts, fears, obsessions, impressions, and so on. A very large number of neurasthenias really belong to the manic-depressive type, and occur in the form of mild attacks of recurrent melancholia, in which often there is not very much melancholia, but only a general depression, with retardation of thought and psychæsthenia. Many of the cases of neurasthenia also found at and after the age of 45, belong with the chronic melancholia of involution, and are really only mild attacks of this psychosis; they are the forms often classed as "depressive neurasthenia" or "anxiety neurosis," and so on. True neurasthenia rarely begins before 25, and the writer called attention to the importance of carefully studying the cases that are supposed to be neurasthenic, occurring in the early period of life. Some of these are the pseudo-neurasthenia preceding dementia præcox, some of them are forms of phrenasthenia or melancholia. The writer dwelt upon the particular importance of studying the mental symptoms in neurasthenics, in order to detect the relationship of their condi-

tion to one or the other group of the major psychoses. The real neurasthenias, he considers, to be usually essentially local diseases, due to some unusual irritability or disturbance of a nervous mechanism. The terms, "congenital neurasthenia" and "hypochondriasis," he thought, could be dispensed with. He would also put the compulsions and impulsions, which are classed as separate insanities, under the general group of the phrenasthenias. The writer did not deny the importance of bodily troubles as a cause of the minor psychoses, but thought that treatment can be made more effective and prognosis more certain, by the knowledge of the exact relationships of the so-called neurasthenia to the groups of the major insanities.

The President, in calling for the discussion of the paper, commented upon the essential unity of nervous and mental diseases. The latter, he said, were merely nervous diseases with greater prominence of the mental symptoms. He welcomed the commoner use of the term "phrenasthenia," which the French had found useful, and approved the essayist's attempt to popularize it as one that described more accurately, in the majority of instances, the symptom complex which neurologists, as a sweeter morsel for the invalid's tongue, had described under the all-inclusive "neurasthenia," whose partial passing the distinguished visitor from New York had come to Boston to proclaim. He animadverted banteringly, and with an attempt at defence, as himself a recent comer to New England, on the pronunciation of the word "neurasthenia" as current in these parts and nowhere else, the adoption of which by the essayist would entitle him at once, despite his modest protest, to recognition in New England as to the manner born.

Dr. Putnam agreed in general with the reader, and emphasized the mental element in neurasthenia. Still, Dr. Dana's classification is not quite satisfactory, for the psychoses are merely variations of the normal state, which is itself not stable or uniform. While admitting, then, the relationship between neurasthenia and mental disease, he would regard these variations only as lines of cleavage. He was fully in accord with Dr. Dana regarding the melancholia of involution. He objected to laying too great stress on the mental aspect of neurasthenia, and deplored a change which should render all neurasthenics liable to be deemed abortive mental cases.

Dr. Walton agreed with the reader regarding the limitation of the diagnosis neurasthenia. In the Neurological Department of the Mass. Gen. Hospital during October, November and December, 1896, this diagnosis was made 43 times, whereas it had been made during the same months of the past year only eleven times, which would have corresponded to about 16 times, if the number of cases had been the same. Most of the cases classed formerly as neurasthenia were now transferred to the "psychoneuroses." He did not think they had often mistaken dementia præcox, or paranoia, for neurasthenia.

Dr. Knapp believed there were many cases of true neurasthenia or inevitable weakness—a condition of pathological fatigue. In uncomplicated cases the mental symptoms are not prominent. Study of a number of cases diagnosticated as neurasthenia showed definite mental symptoms in only a small percentage. A distinction must be made, however, between simple mental depression and true melancholy states. Every sick person is apt to be depressed. This is physiological and should not be classed as melancholia. In only a comparatively small proportion of neurasthenics are there insistent ideas, morbid doubts, morbid fears and other indications of the ideo-obsessive tendency. When a patient becomes weak, however, he begins to distrust his own powers and in this way, especially among the "deviates" and those of an unstable mental organization, mor-

bid doubts and fears may develop. In other cases obsessions may arise in a person who is not neurasthenic, and the struggle against them may so exhaust the patient as to give rise to neurasthenia. We can usually distinguish, however, which is primary. Obsessions sometimes develop into actual delusions, akin to the delusions of paranoiac states;—in fact, *folie du doute* is sometimes spoken of as abortive paranoia. His experience agrees with that of Dr. Walton that as a rule we do not find any tendency to paranoia, or dementia, among neurasthenics.

Dr. Courtney spoke of pathologic fatigue supposed to underlie the neurasthenic state. One is too prone to believe that because over-fatigued honey bees and humming-birds show changes in the nerve cells, analagous changes take place in the human species. Such assumption is unwarranted by clinical experience. In a neurasthenic who can barely crawl from home, yet who walks homeward with buoyant step, the conditions are psychical rather than physical. Whether called phrenasthenia or psychæsthenia, it is to a limited extent a mental degradation, a pathologic state of nolition, and the simulacrum of various forms of insanity.

Dr. McDonald regarded true melancholia and true paranoia as rare, the former falling generally under manic-depressive, the latter under dementia præcox. He coincided with the reader in limiting the use of neurasthenia.

The term congenital neurasthenia, though scarcely permissible for the characterization of a special group, has been of some use in differentiating patients with congenital pathological tendencies.

Dr. Dana said in concluding that cases of neurasthenia allied to or leading up to dementia præcox, were not very dangerous, but their serious character made it very important to recognize them. They were in persons under 25.

There were relatively few cases of abortive types of paranoia passing around as neurasthenias; yet they did exist in the early depressed and moody stage.

The largest number of cases miscalled neurasthenia came under the head of phrenasthenia. The group in its well-marked forms was easily recognized as hysteria, doubting mania, morbid fears, obsessions, and so forth. It was the imperfectly developed forms that were unrecognized and which passed as "nervous exhaustion."

A great many cases of mild recurrent melancholia or manic-depressive insanity were classed as neurasthenia. The speaker thought this would not occur if a more serious study of the mental state were made.

He was inclined to favor the view of Dr. McDonald that paranoia should be classed with paranoid dementia.

He would still recognize some cases as real neurasthenia; the others were "psychoneuroses," and then could be further distributed mostly as phrenasthenia or depressive psychoneuroses.



## Periscope.

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ALLGEMEINE ZEITSCHRIFT FUER PSYCHIATRIE

(Vol. 60, 1903, Pt. 6.)

1. Morbid Impulse to Travel. E. SCHULTZ.
2. Feeble Minded Children in Bavaria. W. WEYGANDT.
3. Hallucinatory Delusions of Persecution in Prisoners. E. RUDIN.
4. Memory in Epileptic Delirium. T. ZAHN.

1. *On Morbid Impulse to Travel.*—The author relates the histories of seven cases, all males, in each of which the patient, without any warning and with no previous preparation, would suddenly disappear, and after journeying from place to place for a greater or less period of time, would return to his home, acting as one awakened from a dream, and showing little or no recollection of where he had been, or what had transpired during the time of his wanderings. As in one of these cases, the matter may be complicated by the taking with him by the individual of funds entrusted to his care, raising the important question of criminal responsibility. The author discusses the etiology of this manifestation, and concludes that while it is probably most frequent in epileptics, this is not universally the case, and some caution must be exercised in its interpretation, in the absence of other and definite epileptic symptoms. Cases in which there is a question of criminality are to be decided after careful consideration of the life history of the patient, and of all the concomitant symptoms.

2. *The Care of Feeble-Minded Children in Bavaria* gives a sketch of the various Bavarian institutions for the care of idiots and imbeciles. The author thinks the following improvements specially desirable: (1) Existing institutions should all have a resident physician.

(2.) Some new idiot asylums under medical direction and in connection with the district asylum system are needed.

(3.) In connection with the school system, special schools for backward and feeble-minded children, under the medical care of a physician with psychiatric training, are strongly to be recommended.

3. *A Form of Acute Hallucinatory Delusions of Persecution in Prisoners.*—Rudin describes the cases of three convicts who suddenly developed hallucinations of hearing and of sight (in one case of touch also) with delusions of persecution, which were never entirely corrected, but made no progress and did not lead to dementia. He thinks that the symptoms presented are sufficiently definite to constitute a definite clinical entity.

4. *A Remarkable Exhibition of Memory in Epileptic Delirium.*—Zahn narrates the case of a male epileptic of 33 years of age and hardly belonging to the class of the insane, who presented the following peculiar manifestations during the delirium following, and between his convulsive attacks. He would begin a Latin prayer (*Pater Noster*), sing a hymn, make another prayer, this time in German, then deliver a funeral address lasting often five minutes or longer, and ending up by gestures of blessing and sprinkling with holy water accompanied by the usual Latin words, and lastly a closing hymn.

The sermon might vary in content as if delivered at the funeral of an adult, a youth or a young child, but the general trend of the cere-

mony was always the same. The author wishing to establish if possible the mechanism of this manifestation, was long puzzled, until one day the patient was heard in his delirium to say some things afterwards found to reproduce some actual occurrences at the clinic. The author then conceived the idea of hypnotizing the patient, and under suggestion succeeded in getting him to repeat part of one of his sermons. He is hence inclined to consider the case as one of peculiar revival of long past impressions during the epileptic delirium. The patient had in his boyhood served as an acolyte, and at that time had been familiar with the ritual of the R. C. Church and doubtless with the funeral service, though he had forgotten this, and could not recall it during his normal moments.

ALLEN (Trenton.)

#### NOUVELLE ICONOGRAPHIE DE LA SALTPETRIERE

(Vol. 16, 1903, No. 5—Sept.-Oct.)

1. The Relation of Tabes to General Paralysis. F. CURIONI.
2. Symmetrical and Subcutaneous Segmental Adiposis in an Alcoholic with Alcoholic Heredity. G. DENY A. LE PLAY.
3. New Remarks on Akasthesia. HASKOVEC.

1. *Relation of Tabes to General Paresis*.—The question of the relation of tabes and progressive paralysis arose at the time when Duchenne of Boulogne devised the term progressive locomotor ataxia (1858-59). The discussion has continued to the present day and when Raymond communicated to the society his views on the unity of the two diseases in 1892 neurologists became divided into two groups, those that held that the two diseases were phases of the same condition with the common etiology of syphilis, and those that believed that the two were entirely different. Toward the solution of this question the author gives an account of a case with autopsy in which the symptoms of the two conditions, together with definite histological changes common to both, were found. Woman, aged 58. Three years ago she began to see double and to show the presence of the Romberg sign. The intelligence began to show evidences of a progressive decline. The mental condition and the absence of all the deep reflexes and the ocular symptoms made the diagnosis of Tabes and Progressive Paralysis certain. The post-mortem showed the meninges injected and adherent to the cortex, especially in the frontal lobes. The microscopical examination showed a diminution of the cells in the cortex of the frontal lobes. The infiltration of the pia mater is especially marked. The same infiltration is observed in the cord, together with the typical areas of degeneration in the white matter of the cord. The author, in discussing the interpretation of these findings, calls particular attention to the presence of plasma cells. These have been regarded as the evidence of chronic syphilitic process. \*Attention is also called to the recent theory, advanced by Marie and Guillain, that the initial lesion of tabes is nothing else than a syphilitic process of the posterior lymphatic system of the cord.

2. *Segmental Adiposis*.—A report of a case of dementia in a woman who presented on the trunk a segmentary and symmetrical deposit of fat, a part of the trunk was also effected. This is a case in all probability of Dercum's disease, Adiposis Dolorosa. The paper is illustrated by two photographs.

3. *Akasthesia*.—The symptom which the author has called by this name consists in the development of peculiar involuntary movements whenever the patients attempt to seat themselves. This peculiar syndrome was first observed in two cases of neurasthenia and hysteria. There was no disturbance of conscience during the attack.

(Vol. 16, 1903, No. 6. Nov.-Dec.)

1. Diffuse Fatty Neuroma of the Median. Resection. Autogenetic Regeneration. G. DURANTE.
2. Catatonic Pseudo-Edema. DIDE.
3. Tics and Stereotypies of the Tongue in Animals and in Man. RUDLER and CHOMEL.
4. Continuous Alcoholic Delirium. SOUKHANOFF and WEDENSKY.
5. Swaddling Clothes of Infants According to the Italian School of Painters. GENEVRIER.
6. Supplementary Documents on the Possessed in Art. MEIGE.

1. *Fatty Neuroma*.—This is an important paper and merits careful attention because it throws light on one of the most discussed problems of the day in neurology. It is by the accumulation of facts such as are contained in this paper that the final solution of the truth of the neuron concept will come about and not by casuistic argument. At an autopsy of a woman, aged 25 years, who died of nephritis, a white linear cicatrix was seen on the left lower arm. On cutting down on the scar it was observed that the median nerve was entirely wanting in that part of the arm. At the upper limit of the scar a terminal amputation neuroma could be made out. In dissecting near the thumb another swelling was found, which proved to be the peripheral neuroma.

It was found that the median nerve had been divided four years before for a diffuse lipoma. This specimen was presented to the Neurological Society of Paris, where attention was called to the two following features of the case, first the existence of a peripheral neuroma which persisted four years after the operation; second, the persistence of the sensation in the territory supplied by the nerve, except in the pulp of the index finger. This persisted, even though the two ends of the nerve were separated 17 C. C. A careful microscopical examination of the specimen was made as well as of the two terminal neuromata. The following conclusions were noted:

The peripheral portion of the nerve still persisted, forming a terminal neuroma which contained nerve fibers. Most of them were still in the state of undifferentiated protoplasmic bands. Some, however, presented a small zone of myelin and a segmented axis cylinder. All stages, from the embryonic protoplasmic tubes to the completely differentiated adult fibers, could be observed. These latter were distinguished from the adult by the unusual size of their incisures, which give the impression at times of an absence of fusion of the interannular segments. In the digital branches, in addition to the large fibers, the cubital origin, of which might be considered are young, newly-formed fibers. The axis cylinders, although present in a definite manner, were less numerous and more often interrupted than in the central branch. This observation is in direct opposition to the law of Waller and the Neuron doctrine. The truth of this doctrine and this law have been questioned of late, owing to a number of investigations which tend to show that a nerve is not formed by a prolongation of the central cell, but it is constituted by a chain of peripheral neuroblasts relatively independent. These neuroblasts do not degenerate, but undergo a simple cellular regression in the peripheral end of a sectioned nerve. This can persist and even regenerate up to a certain point independently of the center. The persistence of sensation in the territory of the median is explained by the supplementary action of the cubital nerve, which is rendered possible by a true peripheral anastomosis such as Apathy and Bethe have described. A very complete bibliography is added to this paper.

2. *Catatonic Pseudo-Edema*.—A special form of edema is described



by the author, who believes that he is justified in giving it a separate place in the classification, for the reason that the edema is not a true one and that it forms a part of the clinical picture accompanying some forms of catatonia. Kraepelin does not mention this in his description of catatonia, although he does describe certain forms of cyanosis and vasomotor disturbances. In the symptom complex catatonia the following three groups of symptoms are noted: Negativismus, stereotypia and catatonic attitudes. The edema is more frequent in women than in men. It is localized most often on the foot of the dorsal surface. It can occasionally be seen on the hands and rarely on the face. Prolonged pressure does not leave an impression as in true edema. Forty-five cases of described in the paper, and this showed beyond a colloid degeneration of the thyroid nothing that would throw any light on this condition.

3. *Tics in Animals*.—A description of these conditions in horses.  
4, 5, 6.—Not suitable for abstracting.

S. SCHWAB (St. Louis).

#### JOURNAL DE NEUROLOGIE

(Vol. 8, 1903, No. 15.)

1. *Physio-psychology in Port Royal Nuns*. C. BINET SANGLÉ.

2. *Spasmodic Tabes*. F. SANO.

1. *Physio-psychology of the Nuns of Port Royal*.—A study of the lives of five members of the Seventeenth Century, Jansenist Community of Port Royal, among whom the author thinks there is shown \* \* \* \* neuropathic heredity in one case, heredity of religiosity in two cases, deafmutism in one case, excessive timorousness in two cases, and hyper-suggestibility in each case.

2. *A Case of Spasmodic Tabes*.—History (and demonstration) of a case showing symptoms of primary lateral sclerosis, possibly to be attributed to lead poisoning. The author admits, however, that there is a possibility of the case eventually turning out to be one of multiple sclerosis or of amyotrophic lateral sclerosis.

(Vol. 8, 1903, No. 20).

1. *Histology of General Paresis*. A. DEBRAY.

2. *Tics*. H. MEIGE.

1. *The Histology of General Paresis*.—Weighing the opinions, on the one side of Klippel, who thinks general paresis primarily a disease of the nerve cells, and on the other of Anglade, Mahaim, and others, who think the vascular and neuroglia changes the primary lesion, the author concludes that the evidence is in favor of the first view. The perivascular cell proliferation and the neuroglia changes he regards as secondary. He finds strong support for this conclusion, in the studies of Van Gehuchten on anterior poliomyelitis, in the capsular proliferation found by Van Gehuchten and Nelis in rabies, by Crocq in diphtheria, and by De Buck and De Moor after ligation of the abdominal aorta, and also in the researches of the last-named authors on the role of the nuclei of the sarcolemma in muscular regression. In each of these cases the proliferated (or exuded) round cells seem to play a phagocytic part. Reasoning by analogy he thinks that in general paresis the cells being primarily attacked by some at present unknown toxic agent the same sort of process goes on, the innervation of the vessels is disturbed, and there is consequently diapedesis of leucocytes, which in turn may act as phagocytes, the neuroglia proliferation being a still later change.

2. *Tics of the Lips, Cheilophagia and Cheilophobia*.—Biting the lips

the author finds very common, and thinks akin to biting the nails, both arising originally from some abnormal sensation in these regions, and being usually found in neurotic individuals may develop into veritable obsessions, under which head he would also place the persistent tics. He narrates an interesting case of an obsession in a young man of neurotic heredity—showing also other tics—which consisted in forcibly holding the lips apart by curling downward the lower lip so as to keep the mucous surfaces from touching. This giving rise to an abnormal dryness and scaling of the mucous membrane awakened the idea of a serious skin disease, which occasioned much mental distress and greatly incommoded the patient. The author succeeded in speedily relieving the condition by reassuring the patient and ordering a system of exercises of the lip muscles. This exercise treatment he recommends for *all kinds of tics*.

(Vol. 8, 1903, No. 21.)

I. Alteration of the Voice in General Paresis. E. MARANDON DE MONTYEL.

1. *Voice in Paresis*.—In general paresis the voice may undergo alterations in both pitch and timbre, in addition to the atactic disturbances of the muscles of phonation so characteristic of the disease. The author made a study of the first-mentioned changes in 55 male paretics during the two earlier stages of the disease, making in all 1,596 examinations. He found the voice nearly as often abnormal as normal. Lowering of pitch is nearly nine times as frequent as its elevation. Raised pitch when present was nearly always excessive, while lowered pitch occurred in three grades, the medium grade being twice as frequent as the two others combined. The voice is more often found altered in the first stage than in the second stage of the disease. During remissions he found the highest percentage of abnormality, next came the depressive form, while the dement form showed the least abnormality. Raised pitch occurred only in the depressive form and during remission, while lowered pitch was found in all forms. Only in syphilitic cases was the percentage of abnormality greater than that of normality. Raise of pitch was found only in the syphilitics and alcoholics, who also furnished the greatest number of cases of lowered pitch, the combination of these two factors giving the maximum percentage of excessive lowering. Lowered pitch was the more marked the older the subjects, raised pitch being only found in the precocious forms of general paresis. Abnormality was more common in the warm season. There was no relation between the disturbance of motility and that of voice. Raise of pitch and excessive lowering of pitch were only found when there was loss of genital sense. The author cannot find that the alteration of voice depends ordinarily upon the cries uttered by the patient, though this may well be a contributing cause. In only one-third of his cases was the voice constantly normal. In one case the pitch was first raised, then normal, and later lowered. The changes are more severe and more fixed in the second stage than in the first. In both stages the evolution of the voice troubles may be irregular and capricious.

ALLEN (Trenton.)

ARCHIV FÜR PSYCHIATRIE UND NERVENKRANKHEITEN

(Vol. 37, 1903, Heft 3.)

1. The Medico-legal Aspects of Spiritualism. R. HENNEBERG.
2. Clinical and Anatomical Findings in a Case of Tuberculosis of the Right Atlanto-occipital Articulation (with an account of the origin of the Spinal-accessory nerve). O. KOELPIN.
3. The Significance of Comparative Paucity of Fiber Bundles in the Human Brain. M. ARNDT and F. SKLAREK.

4. Random Contributions to the Knowledge of Aphasia. K. BONHOEFFER.
5. A Case of Dipsomania. W. ALTER.
6. The Older and More Recent Investigations of the Brain. ED. HITZIG.
7. Concerning the Region of the Eyes and Particularly the Anterior Boundary of Vision as Defined by Munk. KALBERLAH.
8. An Account of the Scientific Meeting of the Alienists and Neurologists of Middle Germany held in Dresden, Oct. 25 and 26, 1902.

1. *Medico-Legal Aspects of Spiritualism*.—A detailed description of various sittings with a "trance" medium, psychological deductions from them, and an account in abstract of the opinion of writers and observers in different countries on this subject, together with the various laws that have been enacted to control the mediums.

2. *Tuberculosis of Atlanto-occipital Articulation*.—The necropsy showed carious matter between the atlas and the occiput and degeneration of the left spinal accessory nerve. The author of the article considers himself justified in saying that the extension of the spinal-accessory nucleus from below upwards is variable; the segments involved are the first three cervical and possibly the fourth. The extension of the nucleus upwards through the coursing of the pyramidal tracts is also not positive. To the inner side of these boundaries is a well-defined cell group which in the uppermost lobe lies in the middle of the ventral horns; then extends laterally and a little posteriorly and finally lies to the outside of the ventral horns. In the lower level the nucleus is included in the basal portion of the lateral boundary of the ventral horns (postero-lateral process of Ziehen). When the process is not well developed, it is included in the entire boundary. The author further claims that this is the first time in which the position of the spinal-accessory nucleus in man has been positively determined by the degeneration method.

3. *Paucity of Fiber Bundles in Human Brain*.—A plea with clinical and microscopical data that a lessened quantity of fiber tracts in the brain indicates mental enfeeblement. The subject was a girl of ten years, an inmate of an idiot asylum. The brain weight was only 1000 grams. The following summary gives the microscopical findings: (1) transverse fiber tracts are practically nil; only a very small bundle of about 2 mm. in breadth and depth united the two hemispheres. (2) A large fiber mass passed through both sides, dorso-medial, from the lateral ventricle in a saggital direction from front back and formed the floor of the posterior and middle portion of the lateral ventricle. (3) From this bundle mass fibers passed throughout its course to the adjacent convolutions. (4) The rudiment of the transverse fiber tracts passed on both sides to the ventral border of the projection fibers and was there absorbed. (5) The peduncles and pillars of the fornix did not unite in the middle line with the body of the fornix, but were in close union with the ventral boundary of the projection fibers. The commissure of the fornix was not present. (6) The septum lucidum was not seen. (7) The fornicate convolution was distinctly atrophied. (8) The transverse fibers of the peduncles of the anterior commissure, normally passing to the pillars of the fornix were absent, as was the distinctive commissure. A critical review of the literature would seem to bear out the author, i.e., that paucity of the fiber tracts always is present in idiocy. An interesting but not unknown fact is the great age to which these idiots may live: in one case reported by Poterin-Dumontel the age was seventy-two.

4. *Notes on Aphasia*.—This first half of this contribution is in the previous number of the Archiv, and considers the so-called sub-cortical word-blindness with partial loss of apperception. The necropsy in this case showed both hemispheres asymmetric! The right, however, though compressed, was intact; but the left showed old and fresh abscess cavi-



ties. The parts of the brain impinged upon and either damaged or destroyed were the visual tract and the fibers of the angular, and, in part, those of the marginal convolution. The second part of the contribution considers a case of aphasia and so-called transcortical sensory aphasia. This case did not come to necropsy, but the clinical findings are given in such detail that one feels constrained to agree with the author that the direct lesion was in the posterior part of the second temporal convolution. It is of particular interest that operations for relief of symptoms had been done in both these cases. (The diagram employed, properly credited to M. Allen Starr, has a familiar look.)

5. *Case of Dipsomania*.—After referring to the close relationship between dipsomania and epilepsy as taught by Kraepelin and Aschaffenburg, the author narrates the history of his patient. This was a man aged thirty-five years, of good parentage. The first attack was at the age of thirteen years. His life was a history of crime and debauchery. The clinical examination showed special changes in the pulse action and in the heart dulness, both superficial and deep. The pulse was irregular in frequency and in rhythm, and usually accelerated about 90 to 100 per minute. The examination of the position of the heart showed increased area of dulness on all sides, particularly towards the left; the increased area of dulness was inconstant, being most marked at 6 o'clock in the afternoon, and least marked at 11 in the forenoon. These conditions lead the author to consider autointoxication as the factor in dipsomania, as well as, he states, in epilepsy.

6. *Investigations of the Brain*.—This lengthy paper is concluded in this number. The effects of lesions in the posterior part of the occipital lobe are considered first in the section! Observation 133 to 135 inclusive are studies on the effect of lesions in the anterior part of the occipital lobe. Each observation is illustrated with two or more photographs. The results are embodied under four headings. (1) Cortical blindness and the projection doctrine. (2) Mind-blindness and the nature of cortical visual disturbance. (3) The mechanism of sight, the disturbance of vision and its restitution. (4) A review and final consideration of the origin of optical apperception. The author's conclusions are that the beginning of all vision is the production of the finished optical picture on the retina: the furtherance is the combination of this optical picture with motor, possibly, and also with other sensory conditions, representatives of a lower order in the infra-cortical center; its final ushering into the higher sphere is due to the existence of a combination in the cortex of this lower order with representatives and sensations of other origin (sensory-representatives).

7. *Region of the Eyes*.—This article is by the pupil and assistant of Ed. Hitzig, the author of the previous paper. This paper practically continues the work of Hitzig, and verifies the findings of that investigator. Twenty-one photographs are given in the text and illustrate the positions at which the various lesions were made.

8. *Alienists and Neurologists*.—An abstract of each paper and the discussion in full is here given. A. FEREE WITMER (New York).

#### ARCHIVES DE NEUROLOGIE

(Vol. 16, 1903, No. 95, November.)

1. A Case of Complete Cure of Blindness (Hemianopsia). S. TCHIRIEN.
2. Installation of a Pavilion of Isolation for Tuberculous Insane at the Asylum of Armstieres. DRS. CHARDON AND RAVIART.
3. Contribution to the Study of Katatonia (Katatonia and Dementia Præcox). DR. A. PARES.

1. *Complete Cure of Hemianopsia.*—The author, in November, 1902, was called to visit a patient of the age of 22, student at Kiev. In summer of 1895 the patient in riding a velocipede sustained a fall and received so severe a shock upon the head that he lost consciousness, and for several days it was necessary to apply ice to his head. Hitherto, he had been one of the first scholars, but thereafter he could not study as before and began to experience pains in the head, principally in the posterior part. In November, 1901, he remarked an evident weakness of vision, which did not long continue. In June, 1902, when looking at himself in a mirror, he found that he did not perceive a complete image of himself and since has experienced a gradual diminution of vision.

Upon consulting specialists, one said there was no remedy, another said it was the *amblyopia* of nicotine, another that it was *acromegaly*, another that there was derangement of the nutrition of the brain and prescribed subcutaneous injections of strychnine in the face and to take internally preparations of iodine and the extract of cerebral hypophysis. "Once more the famous organotherapy," says the author. The weakness of vision increased, the field of vision narrowed, pains in the head and in the left eye became violent. His parents consulted the author. After a study of the case, he says: "My opinion was the following: The contusion of the posterior part of the head and of the cranium as a result of the violent shock, joined to the loss of consciousness, had caused in the patient for some years internal hemorrhagic pachymeningitis in the regions mentioned on the right side.

"There remained, although the flow of blood was reabsorbed, cicatrices between the dura and pia maters. These cicatrices reveal to us the cause of the pains in the head, which manifest themselves from time to time after intense and prolonged intellectual labor.

"The patient after his fall became apathic, his studies soon fatigued him and the visual acuity of the left eye diminished more and more. During last summer, without doubt, as a result of the fatigue of the eyes, caused by the practical labors of the polytechnic institute, there developed in the occipital part of the right hemisphere of the cerebrum a benign tumor (glioma), which swelling within and without exerted a pressure upon the left occipital part of the cerebrum. As a result of this pressure there developed little by little the weakening of the vision, under the form of left hemianopsy, which later extended to the right part.

"I find in my patient only a part of the peripheric visual field in each eye, affected with a considerable diminution of the perception of colors and of visual acuity, particularly in the left eye. This tumor gains little by little the exterior surface of the occipital part of the right hemisphere of the cerebrum, the place where we found the old cicatrice of pia and dura maters.

This is why the patient, who before did not suffer from constant pains in the head, now experienced violent ones; it manifested itself in piercing, acute pains in the left eye and besides prickings in the nape of neck, back, hands. The absence of all paralysis of movement and of all weakening of sensibility, as well as the entire negative result obtained by the ophthalmoscopy of both eyes, further confirmed our opinion. The enfeebled movements of the right side of the body and the absence of the rotulian reflexes (if, moreover, this last phenomenon is not an individual property of the patient) can be explained by the pressure upon the right half of the cerebellum and upon the spinal marrow. In consequence we have established the following *diagnostic*: *Tumor of the occipital part of the right cerebral hemisphere.* What sort of a tumor

is it? The most probable supposition is that it is a benign tumor (glioma?).

"Against the malignant character of the tumor witnesses the anamnesia; against the tuberculous character witnesses in an incontestable manner the system of the lymphatic vessels; there do not appear to be any swellings of the lymphatic glands, those of the neck in particular. *Therapeutic.* Establishing myself upon my diagnostic of neoplasm of the brain, I counseled my patient, as I did in all analogous cases, as well as in cases of pressure of an exudative meningitis upon the ocular motors (in children), to use immediately very strong absorbent remedies. In the end I ordered him mercurial frictions and hot baths. This order at first troubled the relatives of the patient, no doubt because of the bad reputation that mercury enjoys with the public. Incontestably this mistrust of the public is founded upon the opinion of physicians who regard mercurial friction as injurious to the organism.

"They cite ordinarily divers cases of stomatitis and other like facts, in spite of the evident proof that these facts followed the incorrect employment of mercury and the simultaneous employment of preparations of iodine ordered internally by messieurs the syphilodologues themselves. In fine, though, relatives decided to employ the very energetic absorbent remedies which I recommended, the more, as those opposed, after having tried all means except the extract of cerebral hypophysis (!) declared a pessimist prognosis. I commenced by attempting to regulate the activity of the intestines by means of small clysters of glycerine and of the solution of (*chlorure*) chloride of sodium and by means of pills of podophylin; later it appeared that the patient suffered after a chronic constipation, with great dilatation of the rectum and *s. romanum* (which often occasioned in the morning an entire impossibility of urinating). The use of different mineral salts of high endosmotic equivalent and the massage of the rectum and of the abdomen were recognized as most efficacious. My direction as to absorbent remedies were the following: The patient had every day baths of 35° to 36° C. (20 to 30 minutes), and, an hour or half-hour after the baths, mercurial frictions under the form of Aix-la-Chapelle mercury soap, 6 grammes in the back and the sides. The teeth were cleaned with toothbrush, mouth gargled 7 to 8 times a day with a saturated solution of chlorate of potash. The frictions were given 6 days in succession and the 7th day was a day of rest. The frictions were given by an experienced assistant surgeon. Some analyses of the urine were made from time to time, which demonstrated that the mercury was effectively absorbed. During an entire month of this mercurial cure he manifested no symptom of stomatitis; only at the end of the cure I noticed a slight swelling of the gums. The frictions commenced only the 20th of November and continued until the 30th of December, with intervals of 24 hours every 6 days in the beginning, and every 3 days afterwards. In all 26 frictions were made. During the cure the patient took some preparations of bromide at evening and during his meals white wine mixed with Levico. On the 23d of November Dr. J. H. Hene made an exploration of the patient with the hand perimeter. The author states the result of explorations made then and on the 30th of November and the 7th of December. On the 13th and 21st of November we stated in writing perimetergrammes, which show the successive improvement of the sight. The article has 33 illustrative charts.

"Immediately after the second friction the pains in the head and the left eye disappeared completely and appetite and sleep also improved.' The patient is now (March. 1903) able to see entirely well, has become stronger and all the symptoms of the malady have disappeared. During the month of January the patient took warm baths. In February and in



the beginning of March the patient took once or twice a day Iodipine (25 p. 100), a gramme in a gelatine capsule, to induce complete evacuation of the mercury."

2. *Isolation of Tuberculous Insane at Armentières.*—The necessity of isolating the tuberculous in insane asylums has for a long time been admitted, says the author. The very great frequency of pulmonary tuberculosis in the north of France and at Lille in particular, where it is the cause of one-fourth of the deaths, creates the condition that at A. the number of patients affected is considerable. Last year (1902) 20 per cent. of the deceased patients were tuberculous. We have placed spittoons in all quarters and put up notices: "It is forbidden to spit on the ground." Dr. Charden decided to attempt the isolation of these patients, "sole efficacious measure to arrest the increasing march of this terrible affection, while awaiting the creation of the more and more necessary special sanatoria." Difficulties present themselves. How shall we be able to group in the same quarter patients so different? How decide on a certain number among them? Once grouped, how maintain them there? The asylum has the advantage of 5 pavilions clearly separated. We chose the most favorable quarter. On the right of the central hall is a dormitory of 14 beds for bed patients; there are 2 dormitories of 16 beds, one for quiet patients and the other for turbulent; there are 2 chambers at the end of each dormitory which gives 3 isolation rooms and 3 rooms for attendants. Besides the patients have a large court, planted with trees and flowers, sunny almost all day and oriented to the south and adjoining the kitchen garden of the establishment, beyond which is the open country. We intend to annex a vast gallery under glass for winter use. In the patients' quarters the walls have been painted with oil, so that they may be washed; the floors are constantly paraffined.

*Grouping of patients.* Some patients protested, but by gentle measures we brought them to accept a situation, for which they are now the first to thank us. They perceive that they have special care and their régime improved and after a month not one complained or demanded a change. Forty-seven patients, the most of them gravely affected, are placed in the pavilion.

To whom shall we confide the surveillance of our patients? Shall we expose to contamination attendants, perhaps incapable, from their mental stature, of taking necessary precautions? We have some attendants already in their employ who are tuberculous. These are put into the service, which thus benefits them and removes contagion from other quarters. Two other attendants, one of whom is the chief, are not tuberculous; we hope by multiple precautions to keep them from infection. *Precautions:* (1.) A rigorous *disinfection* of all that goes out of the pavilion; (2) to maintain most scrupulous *cleanliness*; (3) to *treat* the patients.

To prevent the dissemination of germs, hygienic spit-boxes are placed everywhere; in the dormitories are used as individual spittoons the simple enameled night vessels, which has the great advantage of being stable and of presenting a large surface which permits the patient in bed to spit easily into his spittoon on the floor. As liquid antiseptic we employ *lysol*, at 2 per cent., which, as Prof. Calmette says: "*Presents certain precious advantages.* Composed of crésyl, of potash and of oléine, its antiseptic strength with respect to the tubercle bacillus is quite great, and thanks to the potash it contains, it dissolves the sputa without coagulating them. Its odor is very agreeable as that of crésyl, and its price is scarcely higher." (Société Française du Lysol, 22 Place Vendôme, Paris; 1 fr. 50 per kilog.) This solution of lysol, at 2 per

cent., we put in our spittoons and use for the daily cleaning of the quarter—benches, tables, floors, walls, etc. The linen of the patients is plunged before leaving the pavilion with a 2 per cent. solution of lysol, where it remains some hours, after which it can be handled without danger. It is then rinsed, then boiled apart for at least a quarter of an hour in a lessive (washing) containing 1.37 per cent. of crystals of soda and 1.15 per cent. of soap.

As to the stools of the patients, they are gathered in a solution of chloride of lime, which sufficiently assures disinfection.

*Attendants* are clothed with a long blouse, easily disinfected in the 2 per cent. solution of lysol. They receive the alimentary régime of the patients. The patients are isolated as *completely* as possible at all times. The workers, sufficiently numerous, are occupied in assisting the attendants. The weekly *baths* are not given in the quarter, but a certain number of the bathrooms are exclusively reserved. The *treatment* consists above all in suratimentation. Unfortunately we cannot give *all* the suratimentation that patients need. They have each day towards 3 o'clock an extra repast of hot milk and bread. They have meat at noon six days out of seven and on four days this meat is roast or broiled. The morning repast is *café au lait*; the evening, vegetables and substantial soup.

We give them medicaments, as indicated by serious considerations; a very continuous cough, for example. All take twice a day cod liver oil, each taking the dose he wishes. The patients are *weighed* each month so as to know the extent of their improvement. We are able to return to their families some of the curable insane, benefited physically and morally and instructed in some notions of hygiene and salubrity, so that their associates will be guarded from contagion.

3. *Katatonía and Dementia Præcox*.—Dr. Paris states that he believes with some of his confrères that katatonía can only be considered as characterizing a phase of a variety of degenerative mental alienation. The first phase, melancholia (at times paranoiac delirium), from the psychose of which katatony would mark the second period, will appear constant, in my opinion, if we are able to go back to all the circumstances of the *début*, and in that respect we are easily led into error, as we shall see in the cases reported in this article. As to the last phase of the psychose, *dementia*, it is incorrect, in my view, to state that it rapidly succeeds the phase of catatony, properly so called, all observations failing to justify the denomination, "*dementia præcox*," as I shall also attempt to establish. The author furnishes at considerable length five observations. In the first case, a woman of 28 years of age is placed May, 1903, at the asylum of Maréville, being affected with mental troubles analogous to those that had necessitated treatment for a year in an asylum *four years before*. She had at that time attempted suicide. Patient had always shown exaggerated religiosity, scruples, etc. On her arrival in May, 1903, she exhibited ideas of culpability, traces of her old preoccupations, etc. In August, habitual mutism, general stubbornness, automatic, stereotype moving about. The author obtained much information from a person who knew the patient as to her history, the father not disclosing all the facts.

The author says: "Catatony does not appear in this case until a certain time after the return of intellectual troubles, after a long period of preoccupations, of sad ideas and after an intermediary state of mental confusion. (If one, he said, had relied upon the information given by the father, from whom the patient concealed, as much as possible, her first preoccupations, the catatony would have seemed to exist almost from the *début*."

In the next case 16 months elapsed since the *début* of the malady

before the period of automatic smiles, etc., appear. His comment is: "Here again we find heredity as a predisposing cause (and hysteria), a determinant emotional cause, a phase of melancholic delirium, a transitory period of mental confusion, a phase of catatony, to which succeeds intellectual enfeeblement, tending to dementia."

Of the next case he says: "We find first the habitual causes of melancholia (heredity, alteration of physical health, emotional cause); second, melancholia; third, mental confusion; fourth, catatony; fifth, a remission if not cure?"

In the course of his comments on the next case he says: "My object has been to show by the preceding examples that there is very rarely a phase of melancholia often insidious and long before the phase of catatony; that this phase of melancholia ought to be sought at times with particular care, for it may, *in part, at least*, escape the attention of the entourage of the patient, and it is thus that some alienists make the degenerative psychose, which we are considering, commence with catatony and gives to it but two phases—catatony and dementia." But if the apparition of catatonic symptoms, well characterized, after a first phase of melancholia showed cause to appear as quite close the ultimate phase of degenerative psychose, there are still cases where dementia appears but *very tardily* and they justify it seems to me the substitution of the appellation *degenerative catatonic psychose* for that of dementia *præcox*, to designate this variety of mental alienation by degeneracy. These cases are not perhaps as rare as is generally believed, and it seems to me useful to call attention to them, to solicit publication of them; it is the principal end of this note."

Of the last case that he cites he says: "It is that of a married woman, mother of five children, who has been sequestered or hospitalized twice with more than ten years' interval for the same troubles (catatonic), entered in my charge at end of September, 1899, who is not yet demented, and whom one can at will, so to speak, put into a catatonic state."

He adds at end of observation: "This woman is very evidently affected with degenerative catatonic psychose as the preceding, but with evolution particularly slow, divided by numerous remissions of variable duration. It attests that a phase of very long chronicity may precede dementia. It does not then seem to me rational to say that katatonia is a syndrome which belongs to the history of dementia *præcox*, or to qualify as *præcox*, the dementia which succeeds catatony in the evolution of the degenerative psychose, of which I have reported some examples; it seems to me also quite logical to distinguish it simply by the name—*degenerative catatonic psychose*, which keeps account of the principal stages of the malady."

*Dr. J. M. Charcot.*—This number contains an account of the "Inauguration of a Monument at Lamalou" to this great physician, who died some ten years ago. It also contains a vignette portrait by Paul Richer.

*Hospitals for insane—young women nurses.*—There is an interesting report by D. G. Deny as to the hospital at Meerenberg, near the village of Harlem, in Holland. The director is Dr. Van Deventer.

Among other things, it is stated that the treatment of those with acute psychoses and in states of agitation is usually alitement (putting in bed) and prolonged baths.

For chronic insane, *work* remains the principle if not the sole means of treatment. More than 60 per cent. of the patients are occupied. There are halls for broom-making, basket-making, pasteboard work, tailoring, etc. There is a school for idiots. For means of amusement there is a park,



and they have concerts, theatrical soirées and the use of a library of 4,000 volumes and numerous journals and reviews. There are 200 women nurses and 40 male nurses to care for 1,379 patients. There is a school for nurses initiated by Dr. Van Deventer, assisted by Mme Van Deventer, comprising a three-years' course, terminating by an examination, which gives the right to a diploma.

*Women nurses for men.*—"Convinced moreover that women possess to a degree much more developed than men the qualities necessary in the care of patients, Dr. V. D. has substituted female for male nurses in the care of men. This substitution commenced ten years ago, has given such satisfactory results that it has little by little become general so that now there are scarcely any but women in the male wards, the male nurses being almost exclusively reserved for domestic labors. Add that to carry out this experiment the director has not deemed it necessary, as some are perhaps inclined to think, to employ only the mature or aged; many of the female nurses that we saw are young, wearing a becoming costume, adorned with insignia of their grade and uniting to the charm of their intelligence that of their person." In conclusion, the author says: "But what is worth special mention is the preponderating roll which they have not feared to reserve for young women in the treatment of the insane. It is a very happy application of the celebrated expressions of Dr. Pinel—considered perhaps a little platonic—that as to an 'insane patient' we help him with *indifference* (without showing any sentimental preference of one to another). In a note the editor says: 'This reform counts in France numerous partisans amongst alienists and the administration does not appear to be hostile to it; we hope then soon to see the experiment made in our country.'"

MR. RICHARDS (Amityville.)

#### MISCELLANY

MOTOR INNERVATION OF CAPILLARIES. R. H. KAHN and E. STEINACH (Pflüger's Archiv, June 26, 1903).

Nearly forty years ago, according to E. Steinach and R. H. Kahn, Stricker established the fact that the finest ramifications of the vascular system are not of a constant diameter but are capable of varying their lumen, not as the result of changes in the blood pressure but as the result of vital changes in their walls. These variations were attributed by Golubew not to a true contractility of the capillary wall, but to the presence or absence of tumefaction of the spindle-cells of the endothelium, the size of the lumen diminishing with the increase in thickness of the capillary wall as the result of this tumefaction. On the other hand, Rouget, and, later, Mayer discovered in the capillary wall many oval spider-like cells which they considered as closely related to the smooth-muscle cells of the arterioles and larger vessels, and to whose contraction they attributed the narrowing of the capillary lumen. In view of these two diametrically opposed hypotheses of the origin of the narrowing of the capillary lumen, Steinach and Kahn were led to investigate whether or not this phenomenon is the expression of a genuine contractility of the capillaries, of the same nature as that possessed by the larger vessels. The results of their researches answered this question in the affirmative. They studied the nictitating and peri-esophageal membranes of the frog and the omentum of kittens and guinea-pigs, and found that when these structures were stimulated by induced electrical shocks, the capillaries, observed under the microscope, responded by means of distinct contractions. There was a diminution not only of the lumen but also of the entire cross-section of the capillary. With maximal stimuli this con-

striction was so great as to obliterate entirely the lumen. The contraction of the capillary was accomplished by the appearance of longitudinal folds or wrinkles in the endothelium, which were more distinct the greater the contraction and which disappeared upon the dilatation of the capillary. Moreover, the degree of this contractility was not uniform in all capillaries nor in all portions of the same capillary; certain capillaries and certain parts of an individual capillary contracting in the same way and to the same degree on repeated stimulation, while other capillaries and capillary-districts did not respond at all. These results have only one interpretation, namely, the possession by the capillary of a true contractile power which resides in the branching cells present in its wall, a power capable of causing complete obliteration of the lumen. The latent period of this contraction amounts to from one to three seconds and the dilatation lasts a longer time than the contraction. The interrupted current only is capable of eliciting this phenomenon, single shocks even of great intensity having no effect. In studying the motor innervation of the capillaries, the authors found that on stimulation of the peripheral stump of the cervical sympathetic, genuine capillary contractions resulted, the same as those following direct stimulation of the capillaries themselves. The latent period by indirect as well as by direct stimulation is greater than in the case of the small arteries, an effect which must be attributed to the peculiar physiological properties of the contractile elements of the capillary wall. The authors also discovered in the capillaries the tendency to a rhythmical contraction. In discussing the functional significance of capillary contraction, they find that it is able, when brought about by the nervous mechanism, to aid in the regulation of the vascularity of the organs or of different positions of a single organ, in conjunction with or independent of the smaller arteries. Furthermore the constriction of the capillaries would increase the pressure of the blood contained within them, and thus, by favoring the filtration of the lymph, would promote the nutritive changes in the tissues, and possibly arouse certain chemical processes which would otherwise remain dormant. The secretion of urine and other processes in which variations in filtration-pressure come into play, are to be thought of in connection with the significance of capillary-contraction.

JELLIFFE.

METABOLISM IN EPILEPSY. G. Sala and O. Rossi (*Gazz. med. Lombarda*, Aug. 16, 1903).

Impressed with the contradictory results reported from analysis of the urine of epileptics, these observers undertook the study of the urine during a period of from one and a half to two months in each of five epileptic patients; examinations of a given quantity of the urine eliminated during twenty-four hours being made daily. The diet was so regulated in each case as to establish metabolic equilibrium. The authors tabulate their findings as follows: (1) The quantity of urine was normal in the majority of cases; (2) the color varied from straw-color to golden; (3) the specific gravity was always high, even when an increased quantity of urine was eliminated; (4) acidity was normal, or slightly below normal; (5) phosphoric acid varied within normal limits; (6) the amount of urea corresponded to that considered as medium by authors in general, but it was less than that which should have been eliminated with the diet given; (7) the quantity of chlorides was generally above the normal, though at times it reached the normal. No connection was apparent between the variations in these elements of the urine and the occurrence of epileptic seizures. An increase in indican was always seen the day following a seizure. Not the faintest trace of albumin was found after an epileptic seizure, whether this was repeated or not.

JELLIFFE.

DIAGNOSIS OF TUBERCULOUS MENINGITIS BY LUMBAR PUNCTURE. M. Variot (La Presse Médicale, June 10, 1903).

The author claims that in the cytological examination of the cerebrospinal fluid, we are now in the possession of a method of investigation truly scientific to establish the diagnosis so often doubtful of meningeal tuberculosis, and even if therapeutically few results are attained by it, at least no harm is done. The presence of lymphocytes in abundance in the cerebrospinal fluid, indicate at least in infants, a meningeal reaction that is associated with the development of microorganisms. On the contrary, experience teaches us that the predominance of polynuclears in the cerebrospinal fluid corresponds with other meningeal conditions of a more benign type, which are more distinctly curable. The writer is able from twenty cases of meningeal tuberculosis, controlled by autopsy to speak positively. In 13 cases a pure lymphocytosis existed; in six cases a lymphocytosis predominated, one case showed an equal number of polynuclear leucocytes and lymphocytes. These cases presented the lesions of a tubercular meningitis with purulent exudate. Six cases of cerebrospinal meningitis showed a predominance of polynuclears. In 14 cases where for various reasons a bacillary meningitis was suspected, lumbar puncture never gave a lymphocytosis, and the cases cleared up without leaving traces. It is a negative control of wonderful value. The technic of the operation is simple; in the space between the 4th and 5th lumbar vertebræ puncture is made, and from 10 to 20 cc. of cerebrospinal fluid is drawn, either through a canula or a syringe. The liquid is received into a funnel-shaped tube, and centrifuged. The sediment is dried on a slide in an oven, and fixed with alcohol ether, and stained with hemateine and eosin or Unna's methylene blue, or thionine, or Ehrlich's triacid mixture. Hunting for Koch's bacillus is a much longer procedure and is uncertain. NOVES.

MENINGEAL HEMORRHAGE. Widal (La Presse Médicale, June 3, 1903).

Prof. Widal, writing of the diagnosis of meningeal hemorrhage, that it has become a fairly simple matter to distinguish this condition which formerly was very obscure. Kernig's sign demonstrates the presence of meningitis, and lumbar puncture by demonstrating the blood in the cerebrospinal fluid, proves the hemorrhagic origin. A case of a woman aged thirty-nine years is mentioned. She had an apoplectic attack, following intense headache, localized in the back of the neck, and vomiting. She was seen in the hospital in a state of semi stupor. Motor and sensory symptoms were negative, except a slight convergent strabismus of the right eye, and a slight ptosis. The knee-jerk was absent on the right side. Stiffness of the neck and Kernig's sign, the inability to produce full extension of the knee were both present. The diagnosis lay between tuberculous and syphilitic meningitis, hemorrhage in the meninges or hysteria. Lumbar puncture showed a cerebrospinal fluid, with a few red corpuscles and a uniform yellow tint which could not have come from traumatism of the needle. Death ensued by a second hemorrhage. Autopsy showed a hemorrhage under the arachnoid, arising from a ruptured aneurism, with blood collected below the right frontal lobe, between the brain and pia mater. The clot had lacerated some of the cerebral tissue, and was closely adherent to it. The aneurism had developed from one of the anterior branches of the right Sylvian artery which was atheromatous, and the clot had plugged the opening in the vessel. The final hemorrhage had broken into the ventricle. Kernig's sign existed in this case though there was no involvement of the spinal cord, or general meningitis. There were three lumbar punctures made; the first showed no cells of any sort, the second two days later, showed a few red corpuscles, and a considerable number of polynuclears, well formed. The third puncture, five days later, contained red cells, some



polynuclears, and a considerable number of lymphocytes. This coincides with the results of others that polynuclear cells are replaced by lymphocytes. In spinal cocainization with absolutely aseptic solution, polynuclear cells appear numerous enough to render the fluid turbid. They are replaced in a few days by lymphocytes, which eventually disappear. Thus an irritating but aseptic irritation of the meninges by the bloody solution just as by cocaine when used therapeutically causes the appearance and disappearance of the two types of leucocytes.

NOYES.

**PATHOGENESIS AND PROGNOSIS OF TABES.** M. Faure (Journ. de med. de Bordeaux, Aug. 16, 1903).

In the opinion of this author syphilis does not play the important part usually assigned to it in the causation of tabes. Other infections and intoxications or simply physical or moral shock, mental strain, or privation must be considered as etiological factors in the disease. Though the majority of tabetics have suffered syphilitic infection, the symptoms of tabes first appear in many such subjects after other infections and intoxications. It may be said that in 60 per cent of the cases, no matter what the treatment, tabes is arrested in the early stages; or its evolution is so slow that its effect upon the duration of life is very slight. In but 30 per cent does the disease progress so rapidly as to justify the grave prognosis formerly given in this condition. Five per cent of the cases are clinically cured, while a like number progress rapidly and fatally, and their course is marked by fever and symptoms of infection. This febrile form of tabes has not hitherto been described, and runs a short course of a few months to two years.

JELLIFFE.

**THE PROGNOSIS OF TABES.** Joseph Collins (Medical News, August 29, 1903).

The symptoms of tabes are classified in (1) the pre-ataxic stage; (2) the ataxic stage; (3) the profoundly incoördinate and hypotonic stage, often spoken of as the paralytic stage. The duration of these stages varies. In 140 cases of the author three years and five months elapsed between the first symptom of the disease and the appearance of the ataxia, but the period of five years is more probably correct.

The factors that influence the prognosis are (1) the clinical type of the disease; (2) what may be called the anatomical type of the disease, i.e., whether lumbar or cervical; (3) sex and age; (4) the individual, his occupation and the treatment. The prognosis is most favorable in the cases of a motor type, especially since the introduction of the Fraenkel system of exercises, and orthopedic apparatus. It is unfavorable when severe disturbance of the urogenital system and trophic symptoms are early and conspicuous manifestations. The prognosis is worse in cases of sudden onset, and better in cases of slow and insidious onset. The presence of recent syphilis is a serious factor due to the changes in the blood vessels. Cervical and cervico-bulbar tabes has a serious prognosis, also early involvement of the nerve supply of the larynx. The course of the disease is more rapid in women, in young tabetics, under thirty-five years of age, and in those whose occupation necessitates standing or fatiguing use of the legs. The pronounced cases common twenty-five years ago, are seldom seen today in private practice, due probably to improved methods of treatment.

W. B. NOYES.

**OSMIC ACID IN TRIGEMINAL NEURALGIA.** J. B. Murphy (Journal Am. Med. Assoc., Aug. 22, 1903).

An additional case of this complaint treated by the intraneural injection of osmic acid after the method of Bennett, of London, is reported by J. B. Murphy. The patient, a man of seventy-six years, presented a triger...

inal neuralgia of long standing, resistant to ordinary treatment and incapable of radical operation on account of the general debilitated condition. The injections in this case were given under ether anesthesia, the nerve being exposed directly over its foramen of exit and from 5 to 10 minims of a 1.5-per-cent solution of osmic acid injected with a hypodermic needle into its substance. A small amount of the solution is also injected between the nerve and its sheath in the bony canal, but care must be taken that none of the fluid gets on the skin. Recovery was uneventful and the wounds healed by primary union. No recurrences of pain have been noted at any time since the operation. The author thinks that the acid probably acts by producing a degeneration of the nerve on the proximal side of the injection, toward the ganglion, rather than by causing a local destruction of the nerve and its terminal filaments. He thinks the former is more likely, because the pain does not subside completely immediately after the operation, as it does when the peripheral nerves are cut, and as it would if the osmic acid produced only a local destructive effect. Instead it subsides slowly and gradually. Moreover, the relief from pain is permanent, which is not the case after peripheral resection. A number of experiments on dogs is now being conducted by the author, which, it is hoped, may throw some light on the changes which take place after the injection.

JELLIFFE.

CURABLE FORMS OF MENINGEAL HEMORRHAGE. A Chauffard, Froin and Boidin (*La Presse Méd.*, June 24, 1903).

Lumbar puncture in diagnosis of meningeal hemorrhages shows that subarachnoid hemorrhage is more frequent than formerly supposed, and is sometimes cured. Six cases are reported by the writer which were terminated by recovery, in which they were able to study series of cytological and chromatic changes in the cerebrospinal fluid. *Case I.* Aged twenty-seven with normal previous history, suffered an apoplectic stroke without premonitory symptoms, characterized by loss of consciousness, with right hemiplegia and aphasia. She recovered gradually, though with difficulty of speech, and weakness in the right arm for a time. Lumbar puncture was made the third day of the disease, and a bloody fluid was withdrawn in large amount with few leucocytes. The fluid precipitated in the centrifuge with a red clot. A second lumbar puncture on the eighth day of the illness, was made, and fluid of a golden yellow color was withdrawn, with a few red and white cells. A third puncture made on the fifteenth day, was a very pale yellow, and contained few blood cells. A fourth puncture on the 29th day showed a normal fluid.

A second case characterized by sudden loss of consciousness, followed by mental alienation, a slight general state of contracture, but no convulsions or paralyzes, exaggerated knee-jerk, Babinski reflex present; no trouble with sensation, no Kernig's sign, or vomiting, but slight stiffness of the neck. Retention, later incontinence, of feces and urine, were present. No albumen, but sugar was present. Lumbar puncture showed bloody cerebrospinal fluid. Two successive punctures showed diminution of blood. In this case the diagnosis was only made by means of the lumbar puncture. In these two cases hemorrhage had taken place into the subarachnoid space. In the series of examination of centrifuged fluid from the different punctures, showed much bloody fluid in the beginning, which became lighter in color. Red corpuscles became fewer, but the lymphocytes more evident. In some reported cases the leucocytes were absent in the beginning, then polynuclear forms, and finally chiefly lymphocytes, were found. In cases of meningitis a correspondence between the clinical symptoms and the cytological changes may be observed.

W. B. NOYES.

SPINAL REFLEXES AND CUTANEOUS STIMULUS. C. S. Sherrington (Journ. de Physiol., Aug. 24, 1903)

Qualitative differences between spinal reflexes provoked from the skin, according to Sherrington, are usually distinguished only in so far as dependent on differences in the regional locus of their initiation. But the variety of species of sensation elicitable from the skin suggests that possibly different reflex motor reactions attached to the different species of end-organs undoubtedly co-existing in one and the same skin field. The author found in experiments on dogs that this is really the case, the different kinds of nerve-endings situated in a certain cutaneous area possessing reflex spinal connections differing wholly inter se. For discrimination between certain sets of end-organs in the skin there are, in fact, available not only psychological criteria involving processes of sense, but data purely physiological with characteristics given in tensions of the musculature.

JELLIFFE.

POLYMYOSITIS AND DERMATOMYOSITIS. R. Rome (La Presse Medicale, May 30, 1903).

The author discusses polymyositis and dermatomyositis, under which terms are included conditions which are more familiar to the German than the French writers. Gouget has described the condition and its transformation into what he calls demato-muco-myositis, which is synonymous with what we call scleroderma. Headache, chills and febrile rise make up a brief and a rapid prodromal period, followed by pains in the muscles, localized or diffuse, increased by palpation, active or passive motions, sometimes severe enough to absolutely cripple the patient. This motor paralysis depends on no other cause than the pain. The muscles are much changed in their structure, being oedematous, almost fluctuating, later infiltrated, indurated, until it becomes atrophied, with absence of electric excitability and the reflexes. first increased, then abolished.

In the course of the disease, muscles of the eyes, respiration or deglutition may become involved. The skin and subcutaneous tissue over the affected muscles is affected, resembling erysipelas. It is also the seat of various eruptions, resembling sometimes purpura or erythema nodosum, sometimes psoriasis, eczema, or even herpes. When these lesions depart a characteristic pigment remains. A tumefaction of the entire region occupied by this demato-myositis, sometimes including joints. The lesions of the mucous membranes constitute a third characteristic element of this dermatomyositis, and shows redness and tumefaction, with formation of little superficial ulcerations. To these symptoms may be added fever, nephritis, enlarged spleen, or multiple hemorrhages. Oppenheim believes that scleroderma may develop with the clinical manifestations of dematomyositis and that dermatomyositis may finally end in scleroderma.

NOYES.



## Book Reviews

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SOCIAL DISEASES AND MARRIAGE, SOCIAL PROPHYLAXIS. BY PRINCE A. MORROW, M. D., Emeritus Professor of Genito-Urinary Disease in the Bellevue Hospital and New York University Medical Colleges, etc. Lea Brothers, New York and Philadelphia, 1904.

There has long been need of a book which the physician might put into the hands of his patients in order to make them realize what the modern significance of venereal disease is. Now that we are well aware of the intimate connection between many serious nervous diseases and syphilis, a knowledge which even the profession did not have a quarter of a century ago, for the sake of phylaxis it is but right that this progress in medicine should be brought to the cognizance of the public. Young men rush heedlessly into danger because they do not realize all that it may mean for after life. If the picture of possible paresis, or locomotor ataxia, or the many other nervous syphilitic or parasyphilitic accidents were once properly realized, there would be much less laughing at the dangers of venereal disease. So far this precious knowledge has been buried in text-books containing so much extraneous matter, or in terms so technical that it was not readily available to the public. Dr. Morrow has written a book that, while thoroughly scientific and with no exaggeration, yet serves very well the purpose of making clear the appalling social perils that are consequent upon social diseases. Knowledge is the first step towards whatever possibility of reformation there may be in this vexed problem—the social evil. For this reason Dr. Morrow's book deserves more than a passing word of praise. It is concise, clear, complete, simple, and yet severely scientific.

J. J. WALSH.

MANUEL DE PSYCHIATRIE. By DR. J. ROGUES DE FURSAC, Ancien. chef de Clinique à la Faculté de Médecine de Paris. Felix Alcan, Paris.

This is the most recent of the smaller French manuals of psychiatry, and it is a very excellent one. In some particulars the author has departed from many of the more especially French lines of thought and has followed Kraepelin and his school, sometimes to advantage, at other times, we believe, with loss. In fact, from the list of principal works which the author gives it would appear that he were better acquainted with German writers than those of France. As for the English and Italian and other work, the author is hopelessly behind the times as far as the bibliography is concerned.

The book is concise. It is accurate for the most part, and is a most excellent short manual. It possesses in some measure the excellent pedagogic form of treatment that so many modern manuals and text-books conspicuously lack, and withal its point of view is distinctly of the present time and looking towards the future.

The author fortunately has no new system of classification to present. He is content to attempt to correlative mental phenomena along physiological lines, as outlined by Sommer, Ziehen and Wundt, and gives perhaps the best presentation of German ideas in French that we now possess. It is to be commended as a useful boon, and one that in translation would find, we believe, a commercially profitable sale in English.

JELLIFFE.

TRATTATO DI PSICHIATRIA. Del PROF. LEONARDO BIANCHI, Director of the Psychiatric and Neuropathological Clinic of the Royal University of Naples, and Director of the Provincial Asylum. Part II. Casa Editrice Dott. V. Pasquale, Naples.

We have had occasion to speak in a previous number of the *JOURNAL* of the first instalment of Professor Bianchi's interesting "Treatise on Psychiatry." Part II opens with a discussion of the pathology of perception, in which the author shows himself to be thoroughly conversant with the most recent work of not only neurologists and psychiatrists, but writers in purely psychological and even biological lines.

It is one of the most thorough handlings of the subject outside of German monographs.

A second chapter deals with the pathology of attention. This important element in the psychic life has been too often neglected by psychiatrists. The author gives a short but useful chapter. Modifications and variations in attention are occupying a more prominent position in modern psychology. Chapter III. takes up the pathology of the memory processes. It is a most thorough presentation, as is also the next chapter on the pathology of ideation. "The Psychopathology of the Emotions and Sentiments" is treated in Chapter V. "Will and Conscience" are further subdivisions here taken up.

Seen as a fragment only, and yet with part I, perhaps one-half of the book, it makes an appeal as a work of exceptionally interesting character. We have seen no recent psychiatry in which modern psychological ideas are so fully represented as in the present. Particularly is it full of modern American psychology as produced in our leading laboratories. The ideas are therefore partly familiar to us and are perhaps better received by reason of this. French and German authors are not neglected.

We hope for a speedy completion of this volume.

JELLIFFE.

DISEASES OF THE NERVOUS SYSTEM. H. OPPENHEIM. Translated and Edited by Edward E. Mayer. Second American Edition. Lippincott Company, Philadelphia and London.

The second American edition of this notable work is amply justified. New matter from the third and latest German edition has been inserted so that the present edition is brought fully up to date. Fifty-four pages and many new illustrations have been added. It is a matter of regret that so many of the illustrations are somewhat blurred. This criticism does not apply to the photographs of the microscopical sections, which in many instances are so clear as to be almost diagrammatic. However, one who has seen many of the original sections in Oppenheim's classroom and laboratory can vouch for their being in every particular faithful copies of the original. The masterly description of the various nerve lesions needs no special comment. We would point to the chapter on "Diseases of the Peripheral Nerves" as particularly noteworthy. It is of interest anent the recent discussion of the nosology of epilepsy to find Oppenheim classes epilepsy among the neuroses. The only fault to be found with the translation is that at times it is too literal. Babinski "phenomenon" is an instance. We are gratified to find that Florida is no longer recommended as a health resort in summer. The translator promises to give proper recognition in this edition to the work of English and American neurologists. He has overlooked, among other instances, the excellent work in this country on the reflexes and the excision of the sensory root of the fifth nerve for intractable neuralgia. Students, practitioners of medicine generally and others interested in the science of the human nervous system will find this book of great value.

WITMER.

AROMATICI E NERVINI NELL' ALIMENTAZIONE. By DR. ADRIANO VALENTI. Ubrico Hoepli. Milano.

This is one of a series of manuals issued by Hoepli's enterprising house. It deals particularly with the condiments—alcohol, in its various forms, coffee, tea, guarana, chocolate, cola, and tobacco.

These subjects are all well handled and the manual has a number of interesting features to recommend it, notwithstanding the extremely hackneyed subjects.

The book is particularly valuable from the standpoint of the action on the nervous system of the various drinks under consideration. The neurologist will, therefore, find much useful information, although most of it is available elsewhere.

JELLIFFE.

LA NEVRASTHENIA. By DR. LUIGI CAPPELLETTI, Asistant Director of the Provincial Asylum of Ferrara. With preface by Professor CL. BONFIGLI, Director of the Royal Asylum at Rome. Ulrico Hoepli. Milano.

Works on neurasthenia seem to be augmenting as rapidly as it would seem that the prevalence of the disease seems to be increasing among the people.

The work is one of much merit, not so much from the standpoint of incorporated original research, but by reason of its very clear and logical presentation.

After an historical introduction, in which the outlines of the affection are hastily sketched, full credit being given to Beard as the real pioneer in the unravelling of the neurasthenic complex, the author discusses in separate chapters Etiology, Symptomatology, Clinical Forms, Outlines and Morbid Associations, Evolution and Prognosis, Diagnosis, Pathology and Therapy. A Bibliography of 1131 titles completes the work.

We can most cordially recommend this small manual. It is a convenient pocket size book, and for those interested in the Italian language, affords recreation, as well as enlightenment.

JELLIFFE.



## News and Notes

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The Groszmann School for Nervous and Atypical Children, at present located at "Pinehurst," Washington Heights, New York City, is now completing its fourth year. Since its beginning, it has grown rapidly, and is becoming more and more recognized as a pioneer institution in an almost entirely new field of educational endeavor. It has already outgrown its present quarters, spacious and beautiful as they are, and it has become necessary to find a new and permanent home for the school, where it can expand and develop.

Such new quarters have been found and secured. Dr. Groszmann has purchased the property, formerly known as "Mountain Park Inn," in the pleasant city of Plainfield, N. J., and the school will be transplanted there early in spring this year.

The property is located on the crest of Wachtung Mountain, a spur of the Blue Ridge, 500 feet above sea level. Along the mountain top runs the celebrated Johnston's Drive, and in and out wind miles of roads, Telford-paved, abounding in romantic scenery and beautiful views. Looking east, the spectator sees spread out beneath his feet a scene unequaled in variety and seldom surpassed in extent. In the immediate foreground lies the plain upon which stands the beautiful city of Plainfield, with its broad and busy streets, its handsome residences, and Green Brook winding its way through its midst. Beyond are the Netherwood Heights, Elizabeth, Newark, Jersey City and Staten Island; while farther yet is seen the glimmering sheen on Newark Bay, the Hudson, New York Harbor, and in the distance the mighty ocean. In the clear light, one can discern the towering buildings of New York, and the steel cobweb connecting Manhattan Island with Brooklyn. In the night time, the electric torch in the outstretched hand of the Goddess of Liberty greets from afar, and the Navesink Highlands Lights point out the path along which returning steamers wend their way homeward to the welcome coast. In the opposite direction lies the romantic Washington Valley, with its historic associations, being numbered among the battlefields of the War of Independence. The bluff near the main building overlooks the "Notch," through which Stony Brook passes on its way to the picturesque Wetumpka Falls.

A prominent visitor said of this location: "A little imagination and a little memory turned Wetumpka Creek into the river Arve, North Plainfield into the village of Chamounix, Switzerland, and the Drive into the path which leads up to the Mer-de-Glace."

The new home of the Groszmann School comprises about twenty-five acres of land (affording ample opportunities for school-gardening, outdoor sports, etc.); a large main building, recently erected and formerly used as a hotel; several cottages; stable; and outhouses. Its location, so high above tidewater, renders it free from mosquitoes and malaria; the dry, clear air, and the invigorating mountain breezes have made the place known as a health resort of no mean qualities. The main building alone can accommodate pupils and teachers very comfortably; and the cottage system will be developed gradually. The buildings are now being entirely overhauled; a new heating plant and new plumbing are being installed, and several important alterations, including fire protection of the most modern kind, are being made so as to fit the place thoroughly for

the purposes of the school. The rooms are commodious and light, and beautiful views are afforded from all windows. The building is surrounded by broad piazzas. The houses are lighted by electricity; and pure spring water from the mountain top is used for drinking and cooking, and is forced into the main building and cottages by an electric pump.

Plainfield is reached in the short time of forty-four minutes from the foot of Liberty Street, New York, on the comfortable trains of the Central Railroad of New Jersey; it is then a matter of ten minutes by trolley to the foot of the hill on which "Watchung Crest" is situated. A few minutes' walk up on Johnston's Drive to the school completes the trip.

Further details will be contained in the new catalogue of the Groszmann School, to be issued shortly.

MAXIMILIAN P. E. GROSZMANN, PD. D., Director.

By reason of the Baltimore fire, the January number of the *American Journal of Insanity* has been unavoidably delayed in publication. Those of our readers who have availed themselves of our special combination subscription rate will, therefore, understand the lateness in appearance of the *Journal of Insanity* (Mg. Ed.).

THE  
Journal  
OF  
Nervous and Mental Disease

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Original Articles.

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REPORT OF A CASE OF ERYTHROMELALGIA WITH THE  
POST-MORTEM FINDINGS.

BY ARTHUR S. HAMILTON, M.D.,  
OF INDEPENDENCE.

ASSISTANT PHYSICIAN, INDEPENDENCE STATE HOSPITAL.

In an article appearing in the *Philadelphia Medical Times*<sup>1</sup>, in 1872, Dr. S. Weir Mitchell first described a disorder, affecting chiefly the extremities, to which, in 1878,<sup>2</sup> he gave the name, erythromelalgia, or red neuralgia of the extremities. Particularly since the appearance of his second article, considerable interest has been manifested in the condition, and there are now on record in medical literature more than fifty cases, to all of which the name erythromelalgia has been applied. By Mitchell, the condition is considered a distinct disorder, but in some cases, particularly those described by Collier<sup>3</sup> in *The Lancet*, the symptoms seem to have arisen in the course of previously existing organic diseases, and there is some tendency at the present time to regard erythromelalgia as merely a symptom-complex.

In the articles by Mitchell which have appeared since the publication of his first contribution, and in reports by numerous other writers, the disease has been fully described from a clinical standpoint. There has, however, been no published case in which a post-mortem examination was made, if we except one reported by Auerbach,<sup>4</sup> in which only the spinal cord and some peripheral vessels and nerves were removed. The present case, therefore,



derives its chief interest from the pathological examination which I was fortunate enough to be able to make. For most of the clinical material, I am indebted to Drs. R. E. Buchanan, of Independence, and G. W. Tapper, of Rowley, under whose care the patient came at different periods of his illness. The clinical record is as follows :

Family History.—The father is living and apparently healthy at sixty-eight years of age, but has had convulsions since he was a young man, and is doubtless epileptic. He does not appear to have suffered much mental deterioration. The mother is living at seventy-four, and she, with a sister and a half-brother of the patient, is in good physical health. A full brother died in middle life of some peculiar disease which was never positively diagnosed. The post-mortem examination in his case revealed only a condition of colitis.

Personal History.—At the time the erythromelalgia appeared, the patient was thirty-nine years of age. Previous to its onset, he does not seem to have had any severe illness. His early years were spent on a farm. In adult life he was an unusually vigorous man, being six feet in height and weighing about 200 pounds. After marriage, he became a commercial traveler; then a merchant in a small town, and finally, for about eight years preceding his illness, he was cashier in a bank. He took a prominent part in local affairs, carried considerable responsibility and was a busy man. His habits were unusually good, and no history of syphilis, gonorrhea or the use of alcoholic liquor could be obtained. He was the father of eight children, the last of whom was born two years after the beginning of his illness. This child, as well as the others, appears to be in normal mental and physical condition.

Present Illness.—In the fall of 1897, he had an attack of rather uncertain character. He first noticed a dull pain in the region of his stomach and liver, and this became so severe that he determined to consult Dr. Buchanan, who, on examination, found slight jaundice and some tenderness over the liver. Nothing else of importance was noted. He was confined to his bed for two weeks, but after this improved rapidly, and eventually went to work again in the bank. About the time of his return to work, he began to have a sensation of tingling and dull pain in the left index finger. I cannot learn whether the appearance of this symptom slightly preceded or followed his return to work. The pain was not nearly as severe as that which was present later in his feet, though it troubled him considerably. In three or four months it disappeared and did not recur until one week before his death. If any redness was present during this attack, it was

not noticed. On the 5th of October, 1898, which was shortly after the disappearance of the pain in his hand, as he was walking home from his morning's work in the bank, he was suddenly seized with a very severe pain in his right great toe. He was able to continue his walk, though with much difficulty. The pain disappeared in about fifteen minutes, but, in a few hours, it returned, and henceforward was a very persistent symptom up to four months before his death. At first, no change was noted in the appearance of the skin of the affected toe, but later, a reddish discoloration always appeared with the onset of the pain. The condition spread rather slowly to the other toes of the right foot and finally included also the sole and the heel, all of which were the seat of exquisite pain at times. The instep was never as much affected as the other parts. When the right foot had become involved to this extent, the pain began to appear in the left foot, which by degrees passed through very much the same changes as the right had done. Shortly after both extremities had become affected, the middle toe of the right foot became very dark and ultimately gangrenous. The toe was moist, but there was never any line of demarcation. It was treated with antiseptic dressings for two or three weeks, but as there was no improvement, Dr. Buchanan amputated it close to the foot and the wound healed kindly. The toe was preserved for examination. Its gross appearance is as follows: The nail is gone, the epidermis is absent from the anterior end, and, on the second phalanx, is only loosely attached. The derma in these regions is black. The extreme tip of the toe is covered by a firmly attached, solid, black crust made up of skin and subcutaneous tissue.

Subsequently, the ends of all the other toes of both feet became very dark, almost black, but no gangrene supervened, and, after six weeks, this discoloration altogether disappeared. In June, 1899, which was after the amputation of his toe, the patient went to Chicago for consultation. He was there given a pair of shoes made so as to lessen the pressure on the ball of the foot. These seemed to give some relief for a time, but the general condition gradually grew worse. He next consulted a homeopathic physician, who advised him to remain in bed. He did so for two or three months, and, during this period, his pain was less than it had previously been. As soon as he got up, however, he found that he was worse than before. When in a sitting posture, with the feet raised, the latter were of a normal color and there was no disturbance of sensation except a deep-seated and constant, though not very severe, ache. As soon as he attempted to stand, however, the toes rapidly assumed a bright red color, which quickly spread to the ankle. In a short time, localized areas of dusky hue appeared, and these gradually be-

came darker until they were deep purple or blue. The longer he stood, the more discolored all parts of the feet became, but certain islets were always darker than the intervening portions, and, as stated above, the arch was never so much affected as the other parts. With this change in color, there developed a most intense pain, which he described as like the sticking of many knives. It was so severe that he could not remain standing except for a very brief period, and at times he would cry out on account of his great suffering. Occasionally attacks came on without the feet being in a dependent position, but this was not common except at night, when he seemed to suffer considerably. There was intense pain in the gangrenous toe up to the time of its amputation, and no relief in other parts of the foot followed the operation. During an acute attack, there was very great tenderness to even the gentlest touch of the affected parts, but as soon as the pain was gone, he enjoyed having his feet vigorously rubbed, saying that this relieved the otherwise more or less constant ache. The nails were always tender and were particularly so when the toes were so dark. At this time, the nail from the toe, afterward amputated, and from one of the little toes, sloughed and the joints all became quite stiff. The great toes and those adjacent remained so, but the others returned to their former mobility as the discoloration disappeared. The local temperature was never much increased, and there was never much throbbing of the vessels, certainly nothing like Dr. Mitchell and others have described as being present in their cases. As the disease progressed, the spots of redness spread to the legs, but never went far above the knees except once, when, for a certain period, they extended up the inner side of the thigh to the perineum. Throughout this area, they came and went just as in the feet. In the spring of 1901, he complained one day of a pain over his heart, and his wife, upon examination, found there a bright red spot about the size of the end of a finger. She thought it was exactly like those on the feet. He had some pain in this region afterward, but the redness was not again present. Throughout the year 1900 and up to his death in 1901, he complained frequently of a dull, aching pain affecting all parts of his body. Rubbing benefited this to some extent.

Many different kinds of treatment were tried for the relief of his pain, but only one met with success worthy of note. Putting his feet in hot water almost always brought relief. When the pain was mild or only moderately severe, the relief was almost instantaneous, but, in a very severe attack, a short time elapsed before the pain ceased. Once, on going out into the snow, he thought the cold was of benefit, and on another occasion, when a physician evaporated some chloroform on one of the discolored



spots, the pain was lessened. Nevertheless, he preferred the hot applications, but occasionally, when these were not quickly efficacious, he would alternate hot and cold applications, thinking that in this way he secured better results.

The patient's wife thinks that he had no impairment of sensibility for heat, cold or touch, and he certainly could judge very accurately the temperature of the water in which he placed his feet, it being necessary that this should be at a certain fixed point in order to bring relief. There was no tremor or spasm until near the end. No enlargement of the bones was noted, but no careful examination of these was made at any time.

In the spring of 1901, he began to cough and expectorate a great deal, and this continued more or less up to the time of his death. There was dullness in different parts of his lungs and rales were sometimes abundant. The attending physician diagnosed the condition as one of induration following pneumonia. At the same time, he complained a good deal of disturbance of vision. The eye-grounds, however, were not examined. He also had indigestion, from which he had not previously suffered. In June, he went to bed and did not get up again until Thanksgiving Day. During the early part of this period, he was troubled a great deal with nightmare. In August, dropsy appeared rather suddenly. The trunk, left hand, legs, feet and scrotum were all greatly swollen. The left side of the body was much worse than the right, the leg and foot on this side being almost three times their normal size. There was never any swelling in the right hand. For a period of two months, including the time when he was most ill, he sweated a great deal, but the perspiration was confined almost entirely to the right side of his body. On the days when he was worse, the perspiration was most free. Occasionally, this stopped abruptly at the median line; at other times, there was some moisture on the left side. His wife is quite positive as to this unilateral sweating, and says that not infrequently his night-shirt would be quite wet on the right side and dry on the left. At about this time, a mitral systolic murmur was first noticed, and an examination of the urine showed a large amount of albumin. He was also suffering severely from dull, heavy pains in the trunk and limbs. As he grew better, the sweating gradually ceased. While the edema persisted he was very ill, but, directly after its appearance, the acute pain in his feet and legs became very much less, and thereafter was not nearly so severe as it had previously been. In the fall he became very much better, and, on Thanksgiving Day, was allowed to sit up in a chair. His life had been despaired of several times during the summer, but he seemed so much better as cold weather came on, that his family even entertained hopes of his recovery. At

this time the edema had almost or quite disappeared, and his urine contained only a trace of albumin. After Thanksgiving, he was dressed and able to be about each day, but he made no further progress. He had no particular pain, though in this respect he was a little worse than when in bed. He complained often of being very tired. This was his condition up to about the middle of December, 1901, when he again had severe pain in the left index finger, extending into the hand, with the same discoloration which had previously been present in his feet. On the 23d of the same month, while quietly sitting by the fire, he suddenly called to his wife that he could not see his hands. Almost immediately afterward he became unconscious. He straightened out in his chair, and a slight convulsive movement followed. In ten minutes the seizure was past, and he seemed as well as usual. He continued so until the 25th, when at eleven o'clock at night, he again became unconscious and had a convulsion similar to that on the 23d. These attacks continued to come on at intervals of every two or three hours until 8 p.m. of the 26th, when he died in a convulsion rather more severe than those preceding. He had been partially conscious in the intervals between his convulsions up to the time of his death, but, after the first seizure, he had frequent attacks of blindness.

Though he had been confined to bed almost the entire summer preceding his death, yet there was never any tendency to the formation of bedsores. After his first illness, no symptoms pointing to any disorder of the liver were noted. There was no great mental change at any time. He was occasionally much discouraged, greatly depressed and unusually nervous, but this was probably not more marked than would have been the case in any other illness equally severe and prolonged. There had been no ataxia and no headache. No curative treatment was of any avail, though he had been under the care of several regular physicians and also of homeopaths, eclectics, and osteopaths, besides trying a variety of patent preparations. While the hot applications had always been sufficient to control the pain, in June, preceding his death, he began to use morphine for insomnia. He voluntarily relinquished the use of this during the last month of his life.

The post-mortem examination was made seventeen hours after death. In the meantime arterial embalming had been done by an undertaker. I have not been able to learn the composition of the fluid used beyond that it contained arsenic, among other things. The embalming was very thoroughly done and doubtless produced a great change in the appearance of the tissues. It seemed also to interfere with their hardening and staining. The autopsy was made in a private house by Dr. George Boody, of Clarinda, and myself. The surroundings and the insufficient time at our dis-

posal prevented us from making as thorough an examination as we would otherwise have done.

Anatomical Diagnosis.—Hypertrophy and dilatation of the heart; slight atheroma of the aorta and chronic valvular endocarditis; old double pleuritis; broncho-pneumonia; enlarged spleen; nephritis; passive congestion of liver; adherent dura; edema of pia-arachnoid.

The body is that of a male, six feet in height, well developed and fairly well nourished. The pupils are equal in size and both are dilated. The skin is pale and post-mortem lividity is slight. Rigor mortis, which is said to have set in early and to have been complete in two hours, is well marked in the feet, ankles and jaw, slight in the knees, hips and fingers, and almost absent in the elbows and neck. The muscles in the feet and calves of the legs are much atrophied, but equally so on the two sides. The arches of the feet are very high, but this condition is said to have been congenital. There is no edema and there are no areas of discoloration such as were present in life, the skin over the feet and legs being very pale. The third toe of the right foot has been amputated and a healthy scar marks the point of amputation. There is no scar on the penis. The panniculus adiposus is very slight over the chest and about 2 cm. in thickness over the abdomen. On opening the body, it is noted that the tissues, including the viscera, are unusually pale and firm, and that the vessels everywhere stand out prominently. These changes are doubtless due to the embalming fluid. The diaphragm is at the fifth interspace on each side. The lower margin of the right lobe of the liver is one finger breadth, and that of the left lobe two finger breadths, below the level of the umbilicus. The transverse colon is somewhat displaced downward by the liver.

Heart.—The apex is at the upper margin of the sixth rib and well outside the mid-clavicular line. The base is at the second interspace and the right border is one finger breadth to the right of the sternum. The pericardium is normal in appearance. The left side of the heart is firm and the right is moderately flabby. Mixed clots, which are quite brittle, project from the vessels and are present in the left ventricle and both auricles. The right ventricle contains an ante-mortem clot. The mitral orifice admits three fingers with difficulty and the tricuspid admits four. The left ventricular cavity is unusually large and its walls measure  $2\frac{1}{2}$  cm. at their thickest point. The anterior leaf of the mitral valve shows quite marked thickening and there is slight thickening along the free border of the posterior leaf. The tricuspid and pulmonary valves are about normal in appearance. The heart muscle appears to be quite healthy, except that on the inner surface of the left auricle and ventricle it is white and firm. The



leaflets of the aortic valve are quite firm (doubtless due to the embalming fluid), but show no calcareous deposit. At the base of the aorta is an atheromatous patch, 1 cm. in diameter, elevated about 1 mm. above the surrounding surface; otherwise, the aorta presents a normal appearance. The walls of the coronary arteries seem to be a little thickened. Weight of heart 990 grams.

The lungs fill the chest cavity.

**Left Lung.**—The anterior portion of the upper lobe and the posterior portion of the lower lobe are adherent to the chest wall by some old fibrous bands. The lower lobe is also adherent to the diaphragm. The entire lung is firm. On section, it has a bleached appearance and no blood escapes except on deep pressure, when a frothy, somewhat blood-stained liquid runs out. The posterior portions of both lobes seem quite solid, though sections float in water. This partial consolidation is certainly ante-mortem. Weight 960 grams.

**Right Lung.**—The right lung is everywhere adherent to the chest wall, so that the pleural cavity is obliterated. The upper lobe presents a fairly normal appearance except for a moderate degree of thickening of the pleura beneath the adhesions. The middle and lower lobes are quite solid, but they are friable and are much torn on removal. Sections float in water. The pleura over these lobes is very greatly thickened.

**Spleen.**—The spleen is large and firm. The capsule is bluish in color and not much thickened. On the posterior border there is considerable post-mortem discoloration. At the lower end is a deep groove which nearly separates a portion of the spleen from the main body. Surface of section is mottled and shows very dark areas surrounded by larger pale red areas. The splenic pulp is firm. Weight 495 grams.

**Adrenals.**—The adrenals seem to be perfectly normal except for an unusual degree of hardness.

**Left Kidney.**—The left kidney is large and firm, and is surrounded by a considerable quantity of fat. The capsule strips readily, leaving a nodular surface with a number of small depressions. Some of the nodular areas are almost white; the intervening substance is pale gray. The cortex is gray in color and so far as can be determined, is of moderate thickness. Weight 250 grams.

**Right Kidney.**—The right kidney seems to be somewhat smaller than the left. The capsule is pale, and on the posterior surface is strongly adherent and portions of the cortex are removed with it. The surface of the kidney is nodular and much like that of the left. Weight 200 grams.

**Liver.**—The liver is unusually large. The capsule is transparent and glossy, and the liver substance shows through as a

distinctly mottled mass, there being alternating large grayish and small dark areas. It is unusually firm and quite friable. Weight 2,475 grams.

Pancreas.—The pancreas seems to be normal.

Vermiform Appendix.—The appendix is 9 cm. in length, but shows nothing pathological.

Nothing unusual is noticed in the scalp, which is covered by a heavy growth of hair. The calvarium is moderately thick; diploe fairly well preserved. The dura is firmly adherent almost everywhere to the bone, and with difficulty separates from it. The pia-arachnoid is edematous and slightly opaque, the degree of opacity being nearly uniform for all portions. The vessels at the base are firm, but show no signs of calcareous degeneration or localized thickening of any kind. The convolutions are moderately plump, except in the frontal region, where there is slight atrophy. The cord and its membranes present a normal appearance.

Microscopic examination. Heart.—The muscle fibers appear to be increased in size. They stain well and the striation is well marked. In a very few there is a small amount of brown pigment near the poles of the nuclei. The blood vessels of the heart and other viscera will be described later under the general head of blood vessels.

Left lung.—The pleura is covered with a well marked exudate in which two distinct layers can be made out. The deeper layer is completely organized and contains many blood vessels and a considerable amount of black pigment. The superficial layer is fibrinous in character and shows here and there a trace of pigment. Everywhere throughout the section, there is a marked increase of fibrous tissue in the lung. The alveolar walls are much thickened and, in places, many of the air cells are partially or wholly obliterated. The majority of the air cells are empty, but some contain granular debris, while in others are fibrin, desquamated epithelium, some red blood corpuscles and a few large mononuclear cells with small nuclei. In parts of the section, a good many "Herzfehlerzellen," containing golden-brown highly refractive pigment are seen. The same pigment is found in less amount, mostly lying free, in the alveolar walls. Throughout the entire section the blood vessels are extraordinarily dilated, and are filled with red blood cells. In places where the alveolar walls are crowded together, the entire field consists of distended and tortuous vessels together with a small amount of supporting tissue.

Right lung.—The upper lobe shows the same condition of pleural thickening, increase of fibrous tissue within the lung and distention of the capillaries. There is less exudate into the alveoli, but "Herzfehlerzellen" are more abundant and show a well

marked tendency to appear in clumps. In one area in the lower lobe, the alveoli contain abundant fibrinous exudate with many red blood cells, some exfoliated epithelium and much granular debris. In another area, extending from the pleura some distance into the lung, there is a much more marked fibrosis than in any of the other sections, and practically nothing is visible except bronchioles, fibroid tissue and greatly distended vessels.

Spleen and adrenal.—Beyond vessel changes, neither viscus shows any marked pathological change.

Left kidney.—The capsule is slightly thickened. Immediately beneath it, at irregular intervals, are seen clumps of round cells, mostly gathered about the stellate veins. These cells contain large nuclei with a relatively small amount of protoplasm. Some of the nuclei are vesicular, while others stain deeply. No lymphocytes are seen in these clumps, and only two polymorphonuclear leucocytes are found in an entire field. There is an increase of connective tissue everywhere, both in cortex and medulla, and there is also considerable parenchymatous change, though this is less noticeable than the interstitial. The capsules of the glomeruli are considerably thickened and frequently dilated, and many of the glomeruli have undergone a partial or complete hyaline degeneration, and some are replaced by masses of fibrous tissue. Frequently the tubules in the medulla, and, to a lesser degree, in the cortex contain hyaline material.

Liver.—Throughout the entire section studied there is marked dilatation of the intralobular veins and atrophy of the liver cells. Both of these conditions are slightly more marked at the center than at the periphery of the lobules. The central intralobular vein is in some instances so distended that its diameter is equal to a quarter of that of the whole lobule. Toward the center of some of the lobules the atrophy is so great that the columns of liver cells are represented only by homogenous, attenuated strings of tissue, in which an occasional nucleus may be seen. In some cases the cells are of about normal size, but all contain numerous fat droplets. Occasionally there is a small amount of round cell infiltration about an interlobular vein. No increase in fibrous tissue can be made out.

Pancreas.—Aside from the blood vessels, nothing of any importance is seen in the pancreas except a desquamation of the epithelium lining the walls of the ducts. In many places this is so marked that the epithelial cells entirely fill the lumen.

Muscle.—Sections of muscle from the first dorsal interosseous of the left foot and the left tibialis anticus show nothing abnormal.

Amputated toe.—The section for study is taken from the plantar surface at the proximal end of the distal phalanx. The epidermis and parts of the derma are necrotic. There is a well marked round cell infiltration of the derma and subcutaneous areo-



lar tissue, particularly about the blood vessels, glands, ducts and nerves. Some of the vessels show a condition of suppurative arteritis, and many are plugged with thrombi.

Blood vessels.—In the amputated toe, the walls of the medium sized and small vessels, and even of the capillaries, are considerably thickened, but the thickening is almost altogether in the

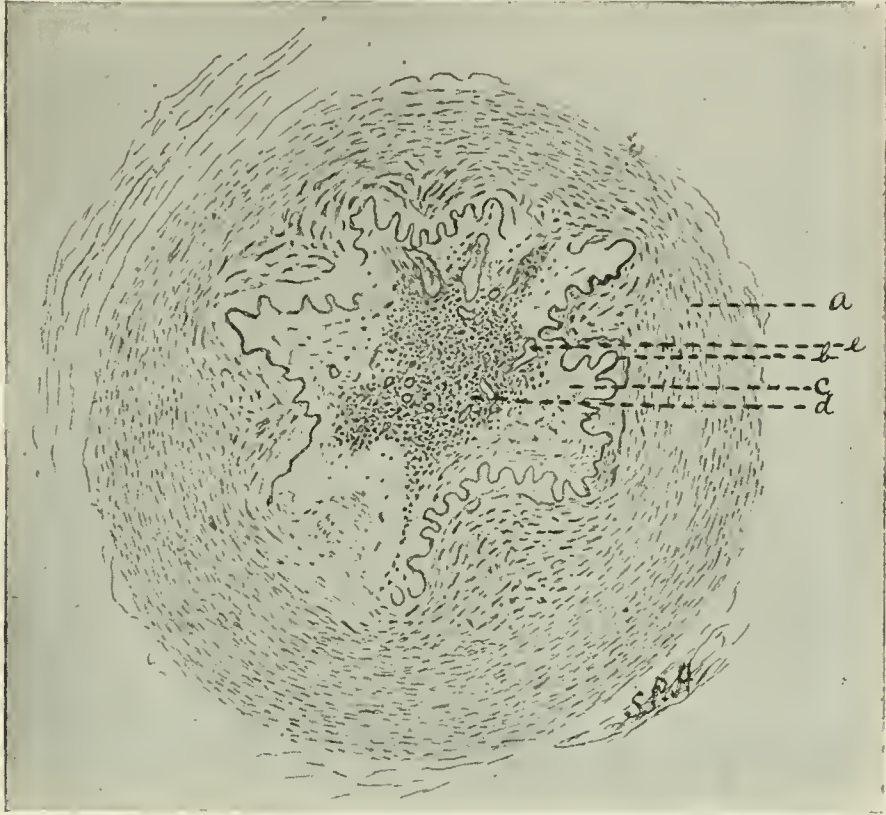


Fig. 1.—Left dorsalis hallucis artery. Eosin and methylene blue. (a) Muscular coat. (b) Elastic coat. (c) Intima. (d) Collection of round cells. (e) Small blood channels. For purposes of illustration the elastic coat is represented as darker than it really appeared.

media, and the intima is but little affected. The lumen is only moderately decreased in size. In the large arteries, the middle and internal coats are both greatly thickened, and the lumen is relatively very small. In the largest artery in the section the internal coat is quite as thick as the middle, and the increase in both is such that only a small lumen is left, and even this is plugged with a thrombotic mass which has undergone partial organization. In this organizing tissue are several small openings in which a few red corpuscles are lying. Other large vessels, both arteries and veins, are plugged with thrombi, but in none is the thrombus so well organized as in the large vessel just mentioned.

When stained by Weigert's method, there seems to be considerable increase of elastic tissue in the arteries. The elastic layer lying between the middle and internal coats is often double, and there is some tendency to the formation of a new elastic layer on the inner surface of the intima.

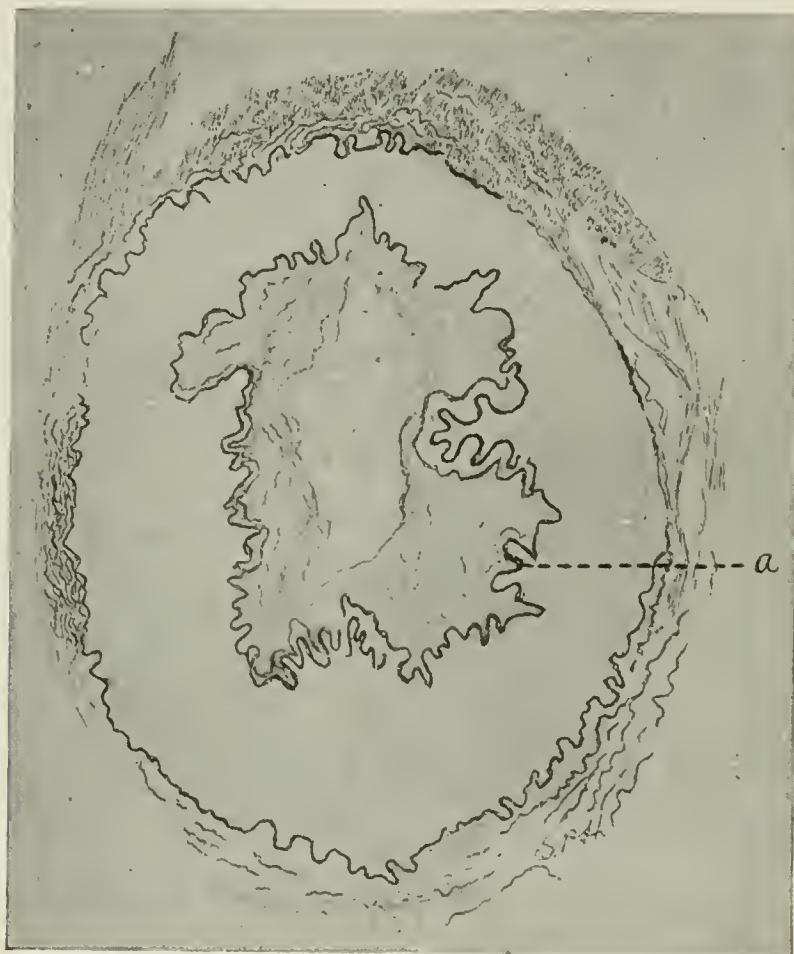


Fig. 2.—Left dorsalis hallucis artery. Weigert's elastic fiber stain. (a) Elastic coat.

The dorsalis hallucis artery of the left foot, removed at the time of autopsy, presents the most striking changes of any vessel seen. The muscular coat (a) is greatly thickened and unequally so, one side being almost twice as thick as the opposite. Inside the elastic coat (b) is a homogenous appearing material (c), with a few nuclei scattered through it. The center of the vessel is filled with a well marked accumulation of round cells (d), some with deeply staining and some with vesicular nuclei. In this collection of cells is a number of small openings (e), more or less filled with red corpuscles, and some lined with a distinct endothe-

lial layer. The elastic tissue is increased in quantity and, under high power, is seen to be made up of three fairly distinct layers. Elsewhere in the interosseous muscle is seen a number of small and medium-sized arteries, all of which show well marked endarteritis, as well as increase of elastic tissue. In most cases the lumen is almost occluded.

The muscular coat of the right anterior tibial artery is slightly and irregularly thickened. The elastic tissue is somewhat increased and, at points, there is a moderate degree of endarteritis, which is unequally distributed. The right anterior tibial vein is normal in appearance.

In arteries of the pancreas (Fig. 3), there is a well marked

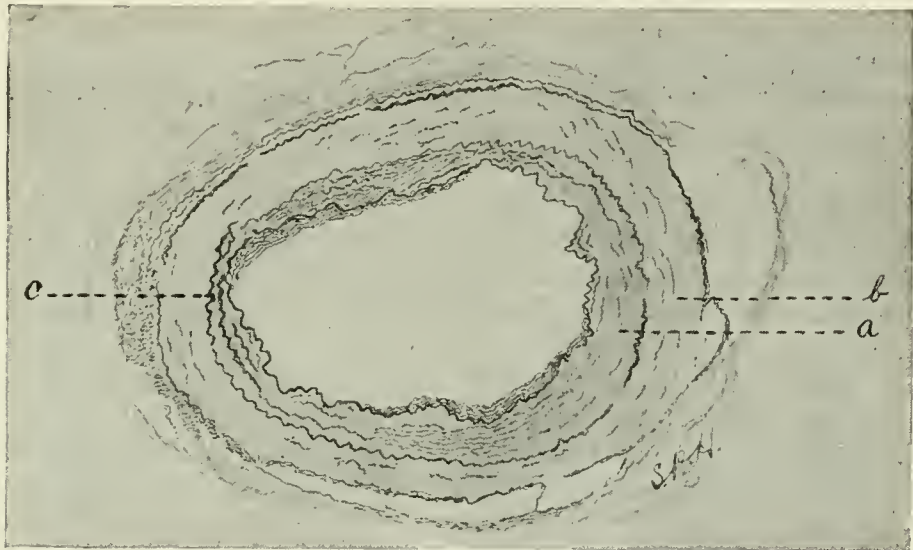


Fig. 3.—Small pancreatic artery. Weigert's elastic fiber stain. (a) Intima. (b) Media. (c) Elastic coat.

increase of both intima (a) and media (b), though this is not quite so noticeable as is found in the vessels of the foot. The lack of uniformity, however, in the degree of thickening in the different vessels and in the different parts of the same vessel is greater than in any other tissues examined. The increase in elastic tissue is very noticeable. Some arteries are almost completely occluded, the lumen being represented only by a few small channels found in the center of the newly formed tissue. In the small arteries, the mesarteritis is much more marked than the endarteritis.

In the liver sections examined, only small vessels are seen. In one field nearly all these contain a great many leucocytes, though not enough to completely obstruct the vessels. They are mostly polymorphonuclear, but there are a few lymphocytes and an occasional large mononuclear leucocyte. There is no leucocytosis in



the remainder of the section. The vessels all show slight increase of muscular and elastic tissue, but no endarteritis is seen.

The sections from the left kidney also include only small vessels, but in all of these, particularly in the cortex, there is a pronounced endarteritis and mesarteritis. In the cortex, the lumen of many of the vessels is almost occluded by the overgrowth of the intima, which is sometimes five or six times as thick as the muscular coat. In many of the vessels the muscular coat is degenerated, and does not take the stain well. The largest arteries show relatively less endarteritis than the others; but, on the contrary, they show greater increase of elastic tissue. The vessels in the medulla are much less altered than those in the cortex.

In the adrenal and spleen there is slight mesarteritis and endarteritis, but not more marked than is frequently seen in other conditions.

In the lungs there is no demonstrable disease of the arteries, but the blood vessels are greatly congested. There is no leucocytosis.

In the arteries of the heart the media is about normal, but in some of them the intima is moderately thickened. In a section taken to include a branch of the coronary artery a majority of the small vessels are found more or less completely plugged with leucocytes. In some of the vessels cut longitudinally the lumen is entirely filled for some distance with these leucocytes, which are almost invariably polymorphonuclear. In the large vessels there is also found a very great leucocytosis, but in most instances the white cells are scattered irregularly about. Occasionally they are found lying in the periphery of the stream. In other sections taken from the lower part of the wall of the left ventricle, a leucocytosis is also present, but it is less marked and the majority of the white cells are lymphocytes.

Sections from the basilar artery and the two internal carotids show no mesarteritis, but a moderate degree of endarteritis of irregular distribution. A piece of the aorta taken from the region of the atheromatous plaque shows, in addition to the ordinary appearance of atheroma, an increase of the elastic tissue. There is no endarteritis.

Nerves.—Portions of the anterior tibial nerve and its branches accompanying the dorsalis hallucis artery were preserved in formalin. The nerves of the amputated toe were also studied. The sections were stained according to the Weigert, Pal-Weigert and Van Gieson methods. The greatest change is found in the nerves of the foot. Here many of the fibers fail to take the characteristic stain, and there is considerable increase of connective tissue, both in the sheath and within the nerve bundles. In the nerves of the toe the same change is found, but to a less extent, and in the

trunk of the anterior tibial nerve only a very small proportion of the fibers appears to be degenerated.

Posterior root ganglia.—The ganglia from the posterior roots of the fifth and twelfth dorsal nerves on the left side, and from the tenth dorsal nerve and an unnumbered lumbar nerve on the right side, were all preserved in Orth's fluid. The preparations obtained from these are not very satisfactory, but so far as can be determined, the cells are practically normal, and there is certainly no alteration of the nerve fibers.

Spinal cord.—The cord was preserved in formalin. At the end of eight weeks small pieces from each segment were placed in alcohol and cut and stained according to Nissl's and Van Gieson's methods. The remainder of the cord was placed in Müller's fluid, and later stained by the Weigert and Pal-Weigert methods. The Nissl preparations are not very good, but the cells appear to be normal. The nuclei are central and stain well. The chromophilic bodies are somewhat hazy, and there is a slight tendency to diffuse staining, but this is probably due to the imperfect method of fixation. Repeated examination of the pieces preserved in Müller's fluid fails to show any degeneration of the nerve fibers. The membranes of the cord are normal in appearance, and there is nowhere seen any leucocytosis or round cell infiltration. The arteries show slight thickening of intima and media.

Brain.—Macroscopic section of the brain fails to reveal anything abnormal.

In its clinical features, this case differs in a few particulars from the classical description of erythromelalgia given by S. Weir Mitchell. If we consider the patient's early illness, during which the symptoms pointed to disease of the liver, as a wholly independent affection, which it probably was, the signs of erythromelalgia were first noted in the left index finger, and their disappearance from this region in a few months, only to reappear after the lapse of three years, is interesting, and, as I think, unique.

In an article<sup>5</sup> contributed to the *Medical News* in 1893, Mitchell modified and made use of a table of Lannois in which the absence of gangrene is given as one feature which distinguishes erythromelalgia from Raynaud's disease, but there are now on record several cases, notably those of Sachs,<sup>6</sup> Elsner,<sup>7</sup> Rost<sup>8</sup> and Dehio,<sup>9</sup> in which gangrene developed, and even in one of S. Weir Mitchell's later cases<sup>10</sup> it came on, though only after an operation for nerve stretching and section. The occurrence of gangrene in my case, therefore, cannot be considered of any great interest.

In most of the cases so far reported it is distinctly stated that cold relieved, while heat aggravated the pain. The only exceptions to this that I can find are the cases of Eulenberg,<sup>11</sup> where the pains were worse in winter than in summer; of Bernhardt,<sup>12</sup> where the pains were worse in windy weather, and were increased by cold; and of Auerbach<sup>4</sup> (Case IV.), where cold at first brought relief, but later cold and heat were used alternately. In my patient, cold relieved the pain somewhat, but was never so efficacious as warmth.

Though the microscopical studies so far have almost invariably revealed marked arterial disease, yet clinical records of such changes are infrequent. In many of the reports nothing whatever is said of the condition of the heart and blood vessels, and, considering how carefully other phases of these cases were studied, it is probable that the findings in this respect were negative, and in some instances it is stated that they were negative. Out of considerably over fifty cases I could find only the following in which well marked disease of the vascular system was noted. S. Weir Mitchell<sup>5</sup> in one instance reports a systolic murmur, but makes no mention of enlargement of the heart or of change in the arteries. Again, in a man of sixty-one, he and Spiller<sup>13</sup> found a faint rhythmic murmur at the apex, but say that the arteries were soft and of normal tension. Gerhardt's<sup>4</sup> patient had palpitation and a weak pulse, and in Dehio's<sup>9</sup> patient the radial impulse in the affected arm was weaker than in the other, but there was no striking rigidity of the vessels, and in neither case was there any change noted in the internal organs. In Henoch's<sup>15</sup> case there were angina pectoris and other signs of arteriosclerosis. Saville<sup>16</sup> speaks of his patient as having a heart which was "nervous," but structurally sound, and, though the radial arteries were a trifle thickened, there was no definite arterial lesion. Elsner<sup>7</sup> found far-reaching arteriosclerosis and slight hypertrophy of the left ventricle in one instance, but this was in a man of sixty-four who had previously had syphilis. In one of Sachs'<sup>6</sup> patients there was a faint change in the first sound at the apex of the heart, but the pulse was strong and regular and there was no evidence of arterio-sclerosis. In another patient he found marked dilatation of the heart and a widespread arterio-sclerosis. In my case there is no clinical record of arterial disease,



and at the autopsy it was impossible, on account of the embalming, to determine by palpation, the condition of the vessel walls. The enlargement of the heart found post-mortem, however, was so great that it must have produced well marked clinical signs, and the fact that such a condition has not been observed in the cases of Elsner and Sachs would seem to show that marked cardiac hypertrophy or dilatation is not a common accompaniment of erythromelalgia.

The edema which came on in August, 1901, with the succeeding disturbances of vision, gastric distress, unconsciousness, convulsions and death, were all probably directly dependent on a chronic nephritis. It is difficult to explain the unilateral sweating and edema. The right hand, which was always free from the erythromelalgic process, was, of all the extremities, the most free from edema; but the right foot, which was less affected by the edema than the left, was the seat of erythromelalgia before the left foot had become involved, and it was possibly, throughout, the seat of a little greater pain than the other. It is well known that in uremia there is at times a great increase of activity in the sweat glands, and the sweating of the right side may readily account for the relative lack of accumulation of fluid there. The question still remains, however, as to why the sweating should have been greater on the one side than on the other. There was nothing in the case to lead to the belief that the hemidrosis was hysterical. In Henoch's<sup>15</sup> patient, there was unilateral sweating, and, in a number of instances, there has been sweating of the affected part, especially when this was the seat of acute pain. In one of Mitchell's<sup>17</sup> patients, there was, at one time, edema from the waist down. In the present case it is unlikely that the appearance of the edema had anything to do with the partial disappearance of the pain. I think it more probable that it was a mere coincidence, and the fact that the pain did not return after the edema had disappeared seems to lend countenance to this view.

Up to the present time the amount of tissue available for examination has been strangely meager. In Woodnut's<sup>18</sup> case, where a toe had been amputated, the surgeon described it as follows: "The amputated part had turned to gristle, and had no circulation." In Dehio's<sup>9</sup> patient, who had had erythromelalgia for four years in the left hand and foot, 4 cm. of the left ulnar

nerve and artery were removed and sectioned. The nerve was found to be normal, but in the artery there was marked endarteritis, with a diminution of the lumen to one-half its former size. The adventitia was normal and the media practically so. Elsner's<sup>7</sup> second patient, a woman of forty-two, had suffered for twenty years with erythromelalgia of the left index finger. This was amputated, and the following pathological report on the amputated tissue was made by Dr. Steensland: "There is occasional slight thickening of the intima of both the large and small arteries. About the small arteries are occasional foci, with infiltration of lymphoid cells. Veins are apparently normal.\*\*\*\*Careful examination of the nerves, Pacinian corpuscles, sweat glands, hair follicles and muscles showed nothing apparently abnormal."

Dr. Mitchell's two cases, from which pathological material was obtained, and also the case which he and Dr. Spiller together reported, are as follows:

Case I<sup>9</sup>. Male; age twenty-one; had sustained a severe injury of the right foot, and, almost immediately afterward, erythromelalgia of this member developed. Fourteen months later, at Dr. Mitchell's suggestion, Dr. Keen excised two and one-half inches of the musculo-cutaneous nerve, and the same length of two branches of the internal saphenous. On examination, these nerves were found to be normal. Cultures from the blood and nerves also yielded negative results.

Case II<sup>10</sup>. Male; age forty-eight; erythromelalgia of the right foot had been present for eight months. At Dr. Mitchell's request, Dr. T. G. Morton excised portions of the musculo-cutaneous and internal saphenous nerves which, when examined, were found to be normal. On the fifth day, signs of gangrene appearing in the foot, the friends became dissatisfied and removed the patient to another hospital, where, one week later, he died during an attempted high amputation. It was reported to Dr. Mitchell that the vessels of the amputated limb, even the smallest arterioles in the sole of the foot, showed thickening of the muscular coat, while in the larger vessels there were calcareous deposits.

Case III<sup>13</sup>. Male; age sixty-one. In July, 1897, erythromelalgia appeared in the fourth and fifth toes of the right foot, but, after three months, these became practically well, and the second and third toes were in turn attacked. These later greatly

improved, and, at the time Dr. Mitchell saw the patient, about eight months after the original onset, the great toe was the seat of violent pain. It was impossible to feel any pulse in the right leg below the groin, and, on account of the general condition of the vascular system, it was decided to amputate only the right great toe. The nerves and arteries of the amputated part were carefully studied. The nerve bundles were composed almost entirely of connective tissue, and only a few undegenerated nerve fibers were seen. In most of the arteries there was considerable increase of the muscular tissue, and in all, even the smallest, there was great proliferation of the intima, so that in some vessels the lumen was almost obliterated. Increase of elastic tissue was also found. The walls of the veins were also thickened. The bones were enlarged.

The following is Auerbach's<sup>4</sup> case: Male; age forty-six; right foot and leg much affected by erythromelalgia, left slightly so; duration of disease, twenty-six years; tabes suspected. Had marked septic infection just previous to death. Forty-three hours afterward, permission was granted to remove the spinal cord, the posterior root ganglia and the nerves of the lower extremities. The microscopic examination was made by Professor Edinger, who, on account of the death from a septic condition and the delay in securing the post-mortem examination, found it impossible to make any positive assertion as to the value of the cell studies. The examination of the sciatic, tibial, peroneal and foot nerves resulted in wholly negative findings. There was thickening of the intima and media of the vessels, but it was equal on the two sides and not more than the age of the patient warranted. Seven posterior root ganglia from the lumbar and sacral nerves were taken, but in none of these was a single positive pathological condition found. There was a nuclear proliferation about the nerve fibers and the groups of nerve cells, but it was equal on the two sides and not considered of much importance. In the cauda equina almost half the nerve bundles on the right side and a few on the left side were wholly degenerated. They were spread over the entire field, but were much more numerous in the dorsal part of the section than elsewhere. In the lower part of the cord the posterior columns were much degenerated, except for a narrow wedge of normal nerve bundles directly next the posterior median



fissure on both sides, and the degeneration was greatest on that side (right) on which the most degenerated fibers were seen in the cauda equina. The abnormal fibers entering the cord were gradually replaced by normal fibers until, at the level of the middle of the lumbar swelling, only a single degenerated bundle could be seen entering. In the thoracic and cervical cord, only the most median part of Goll's column was degenerated. No pathological changes in the cell columns were found.

Sachs'<sup>6</sup> case was as follows: Male; age thirty-six. His illness began in August, 1897, and he came under Dr. Sachs' care in April, 1898, with well-marked symptoms of erythromelalgia of the left foot and leg. Owing to the development of an ulcer on the dorsum of the foot, and later of gangrene of the toes, an amputation at the lower third of the thigh was performed October 31, 1898. Sections from the anterior tibial and popliteal arteries and from the anterior and posterior tibial, peroneal and sciatic nerves, along with some veins and some muscular tissue, were removed from the amputated leg for study. The sciatic and popliteal nerves were practically normal. The anterior tibial and peroneal were slightly degenerated. There was no peri-neuritis. All of the arteries were diseased; the anterior tibial and the popliteal and their branches, the most so. The arteritis was particularly noticeable where the vessel accompanied a nerve bundle, and, in many such, the lumen was occluded. All the coats were affected, but the intima particularly so, and, as there was here a considerable amount of new fibrous tissue, it is probable that the disease was of old standing. The veins showed a very slight thickening. The muscular tissue was normal.

In a consideration of these cases, one cannot but be impressed with the marked changes demonstrated in the vascular system and the relative infrequency of any definite lesions in the nervous system, either central or peripheral. In his early communications, Dr. Mitchell was of the opinion that the disease might be due to some central disturbance in the nervous system, but, in his more recent studies, he has been inclined to the view that it is dependent on a nerve-end neuritis. In the last paper<sup>13</sup> by Mitchell and Spiller—having in view Auerbach's case as well as their own—they say: "We must conclude that involvement of the sensory fibers anywhere between the spinal cord—or possibly

within the spinal cord—and the peripheral ramifications is capable, under certain circumstances, of causing erythromelalgia.” They believe that the symptoms in their own case were due to a peripheral neuritis. Auerbach<sup>4</sup> concludes that the phenomena may be of either central or peripheral nervous origin, while Lewin and Benda<sup>19</sup> divide all cases into three classes, viz.: (1) Those with true organic disease of the central nervous system; (2) those with functional disease of the central nervous system; (3) those with peripheral disease of the nervous system, either functional or organic. Dehio<sup>9</sup> believes that the essential lesion is in the posterior and lateral horns of the cord, and Collier<sup>3</sup> thinks that erythromelalgia is merely a symptom of organic disease of the spinal cord and “may be of great value in diagnosis.”

Nearly all the early studies seem to have been undertaken with the idea that in the nervous system would be found the important pathological changes and, as Barlow<sup>20</sup> in his excellent article says, the inability to find clinical evidence of degeneration in the larger arteries seems to have still further drawn attention away from the vascular system. Thus Auerbach<sup>4</sup> in his report gives four cases from his own experience, all of which seem to have presented fairly typical signs of erythromelalgia, except that in the first two the disease progressed with unusual rapidity, and was associated with a considerable degree of arteriosclerosis. He thus concludes his report: “These cases (the first two) depending clearly upon an arteriosclerotic basis, should, in my judgment, be entirely separated from the nervous affection erythromelalgia.” Why such cases should be excluded when the real nature of the disease has certainly so far not been established, it is difficult to understand.

Two recent writers have expressed views quite different from those given above. Savill<sup>16</sup> thinks the disease is due to a vasomotor paralysis dependent on a toxic condition of the blood, and considers that it is merely an advanced stage of acroparesthesia and may terminate in Raynaud’s disease. Sachs,<sup>6</sup> in closing his interesting paper, says: “As a result of our studies, imperfect as they are, the questions put at the beginning of this paper may be answered thus: Erythromelalgia cannot be considered a *morbis sui generis*; it is a complex of symptoms which may be associated with diseases of central origin, but has been shown to be

due to disease of the peripheral arteries. It cannot be denied that this obliterating endarteritis may be caused by central or peripheral nerve diseases, but the findings in one of our own cases render this unlikely, and comparison with conditions closely resembling erythromelalgia following upon marked cardiac and arterial disease leads to the inference that this symptom-group may be developed in the presence of arterial disease without any preceding nervous affection. Surely erythromelalgia is as much an arterial as a nerve disease."

Indeed, from a pathological standpoint, it would appear, in many cases, to be much more an arterial than a nervous disease. In Dehio's,<sup>9</sup> Elsner's,<sup>7</sup> and one of Mitchell's<sup>10</sup> cases, there was abundant evidence of arterial disease, but no degeneration of the nerves, and, in Auerbach's<sup>4</sup> case, the peripheral nerves were not affected. In Sachs's<sup>6</sup> case and my own the disease of the arteries was out of all proportion to the degeneration of the nerves, and the fact that, in my case, no such degeneration of the cord was present as was found by Auerbach and pointed out by Collier shows, at least, that this is not a necessary accompaniment of erythromelalgia.

Granting, however, that the arterial disease is the primary and most apparent lesion, and that the neuritis is secondary, it is still necessary to explain the arterial condition. It has been usual to speak of some disorder of the vasomotor system in order to account for the sudden flushing of the affected parts and, with this rather vague explanation, it seems we must be satisfied in the present state of our knowledge. The unilateral sweating in my case, probably of vasomotor origin, seems to lend support to this view. Before we can arrive at any positive conclusions as to the definite location of the essential lesion a more careful study must be made of the vascular system and of the entire nervous system, including the sympathetic ganglia. Judging from the collected anatomical studies and from my own material, I am inclined to consider the disease as much more nearly related to Friedländer's obliterative arteritis than to a degeneration of the spinal cord. Certainly the only marked, constant and general pathological changes in my case were found in the vascular system.

NOTE.—Since the preparation of the above report, my attention has been called to an article, by Dr. H. Batty Shaw, in the



*British Medical Journal* of March 21, 1903, presenting pathological findings in three amputated extremities in cases of erythromelalgia. A careful study of the nerves and vessels was made in each instance. In all there was considerable thickening of the intima of the vessels, but the degree varied in the different cases, and in different vessels in the same case. In case No. 1 the proliferation of the intima was greater in the veins than in the arteries. In all three the nerve fibers seemed normal. In conclusion the author says: "As a result of a consideration of these reported cases, it would appear that erythromelalgia, when occurring independently of central nervous change, is associated with but one morbid picture, that of local vascular change."

I have also, in this interval, become acquainted with another case of erythromelalgia—the individual having been a friend of the patient described above. He is now about seventy years of age and a lawyer by profession. About five and one-half years ago, he began to suffer from erythromelalgia in the right foot. The condition grew worse, and, after some months, appeared in the left foot also, but was never so severe there as in the right. He tried various physicians and methods of treatment without benefit, and, two and one-half years ago, consulted Dr. Dana, of New York, who kindly furnished me the following notes as to the patient's condition at that time.

The symptoms of erythromelalgia were well marked in both feet, but there was no disturbance of the reflexes, no evidence of anesthesia, no atrophy of the muscles, no arteriosclerosis and no indication of peripheral neuritis. The urine examination was negative, except for the presence of a trace of albumin. Iodide of mercury, large doses of salicylates and various local applications were tried without benefit, and Dr. Dana then recommended a resection of the sensory branches of the sciatic nerve in the right leg. The operation was performed by Dr. Jepson, of Sioux City, Iowa. For a time afterward there seems to have been some relief, but, at the end of six months, the patient says the pain was quite as severe as before. At that time, he applied to Dr. Albert Fensch, of Omaha, under whose care the treatment described below was carried out, and who furnished me the information concerning it.

The patient was then, on account of his pain, quite unable to

get about without the assistance of an attendant. He was also having some trouble with an enlarged prostate, but, aside from this and his erythromelalgia, his physical condition was quite good. He was first given glycono-phosphate of soda, hypodermically, for three weeks, with considerable improvement; but the drug which seemed to give most relief was aspirin.\* He is now able to walk four miles or more each day, and has no pain whatever in the left foot and leg. His greatest complaint is that the right foot becomes very cold in winter and is not as much under his control as the left. He states also that it pains him slightly during stormy weather, but that aspirin usually easily controls this. There is but little in his condition at this time to make one think of erythromelalgia, but the fact that Dr. Dana considered it such, and that the diagnosis was concurred in by other eminent physicians, including Dr. Sachs, of New York, seems to place the diagnosis quite beyond dispute.

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\*It is difficult for me to see how this treatment could have been of any avail in staying the pathological progress in my patient, even though it might have relieved his pain.

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# THE VALUE OF ASTEREOGNOSIS AS A LOCALIZING SYMPTOM IN CEREBRAL AFFECTIONS.<sup>1</sup>

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It has now been established clinically by strong evidence that astereognosis may be produced by lesions of various parts of the nervous system. It may be caused by affections of the cerebral cortex, by subcortical lesions, by lesions in or near the optic thalamus by lesions of the pons and medulla, and, finally, by lesions of the spinal cord or of the peripheral nerves. The exact localization, however, of the lesions which produce this symptom has never been absolutely fixed, and reliable post-mortem data can still furnish us with important information.

The various theories put forth to account for the presence of astereognosis in lesions of various portions of the cerebrum I shall not discuss at length here. The views of Walton and Paul set forth in their most valuable paper in 1901 are those which appear to me to best account for the facts known at the present time. These facts seem to be as follows:

1. Astereognosis occurs in affections of the cerebral cortex in the motor region, whether these affections be traumatic or due to other causes.

2. There is strong evidence clinically that astereognosis occurs in many subcortical lesions. It is a common accompaniment of organic hemiplegia.

3. Astereognosis may occur in lesions of the medulla, as in the well-known case reported by Dercum.

4. Astereognosis occurs clinically in locomotor ataxia, ataxic paraplegia, and possibly other diseases of the spinal cord. It has been found in multiple neuritis.

The number of cases reported with autopsies in which astereognosis has been a prominent symptom, or in which it has been recorded is very small. The evidence for the existence of this symptom in affections of the cortex is almost wholly clinical or

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<sup>1</sup>Read by title at the meeting of the American Neurological Association, May 12, 13 and 14, 1903.



based upon cases in which the cranium was opened, either directly through trauma or by trephining.

The earliest case of importance in this relation seems to have been that of Wernicke. The patient—a man twenty-one years old—received a blow on the head with a stick in the region of the left arm center.. His speech was at once impaired, being stuttering and stammering; and there was immediate loss of power of the right upper extremity with clumsiness in its movements. Operation was performed the next day and some hours after there was found absolute flaccid paralysis of the fingers and hands, while motion of the forearm and upper arm was retained. There was dulling of the touch over the hand and forearm. The pain and temperature sense were not essentially disturbed. There was persisting asternognosis, which five years later had wholly disappeared.

Von Monakow reports the case of a man twenty-five years old, who struck his head against a hard corner of wood. The scar was in the left parietal region about 1 cm. in front of the transverse line connecting the posterior borders of the auricles and 5 to 5 cm. below the vertex.

Motion and sensation were wholly abolished in the right upper extremity. On operation a wedge-shaped piece of bone was found penetrating about 1 cm. into the cortex. Eight days later, motion of the arm was partially restored. The sensation to touch and temperature sense was diminished; the muscle sense much diminished; sensation to pain retained. Astereognosis was present.

Dr. Burr's case was that of a man twenty-four years old, who when ten years old, had received a severe blow with an axe handle, which caused a depressed fracture of the right parietal bone over the motor area. He seems to have been unconscious for three weeks, and, on recovery of consciousness was found to have a hemiplegia of the whole left half of the body—trunk, limbs, and face and a complete anesthesia of the same side. "The palsy and anesthesia entirely passed away in a few months, though he could not recognize objects grasped with the left hand. This symptom has continued. At the time of the examination, the tactile, pain, and temperature senses were normal. Sense of location of touch over the whole left side." Dr. Burr considered the case hysterical..

Walton and Paul (Case III) report the case of a young woman who thirty-seven days previously had noticed numbness of the right hand. This gradually spread to the elbow and in a few days loss of power in the whole limb followed. Several days later she lost power and sensation in the right leg, and about this time her speech became affected. On examination, touch, pain, and temperature senses were normal. Pressure sense was lessened; posture sense moderately impaired. The sense of location was lost in the palm, normal at the finger tips. Space sense was blunted. Incomplete astereognosis. Operation, twenty-four days later, disclosed a dark, discolored area of the cortex, the size of half a dollar behind the left fissure of Rolando. Nothing else seems to have been detected.

Verger has reported several cases of cortical lesions in which astereognosis was present, but only one in which there was proof by operation of the site of the lesion. (Case XXXVII). Male, forty-six years old, admitted to hospital for left hemiplegia and clonic convulsions of three months' duration. He had complete astereognosis. The cranium was trephined by Dr. Lannelongue, who found a hemorrhagic clot crossing the fissure of Rolando and infringing on the ascending frontal and the ascending parietal convolutions in their middle third. The cortex in this region seemed completely destroyed and the white substance beneath was softened and friable. The patient died, but there was no autopsy.

None of the cases reported above seem to me really conclusive of the existence of astereognosis in a purely cortical lesion, although the presumptive evidence afforded by them is strongly in favor of its existence.

The following case of Raymond (reported by Verger, Case XLIII.) is of more importance in this regard. It was that of a young man with hemiparesis of the right upper extremity and Jacksonian epilepsy, who was operated upon by Chipault. An angioma of the dura mater was removed, together with the subjacent cortical tissue. After the wound was healed and the patient completely cured of the epilepsy, among other sensory symptoms there was still marked astereognosis of the right hand.

We should compare in this connection the case of syphilitic gumma of the dura mater reported by Dana in 1894. Langdon (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1901, p. 610),

relates the case of a woman twenty-four years old, with epileptic convulsions, in whom, after an operation over the hand center in the Rolandic area, astereognosis occurred. There was found a localized pachymeningitis over less than one inch of the area and the meningeal membranes were adherent to each other and to the cortex. Apparently nothing more than separation of the dura was attempted.

Dr. L. L. Williams reports the case of a man, twenty-three years old, who had compound fracture of the skull and wound of the arm center. Operation showed laceration of the brain substance apparently about the center of the Rolandic region. Several fragments of bone were imbedded in the brain. There was suppuration and hernia. Astereognosis was noted late in the case. The evidence that astereognosis may occur in subcortical, capsular, and thalamic lesions is incontrovertible. Verger' (Case XXXVIII.) relates the case of a patient, male, thirty-one years old, with Jacksonian epilepsy starting in the upper part of the right forearm. After the first attacks, there was a slight hemiparesis. Operation performed by Prof. Demons revealed an abscess quite deeply seated beneath the Rolandic area. The convolutions were only a little congested. After the operation, when the cortex had been more or less bruised by the manipulation, there was total astereognosis of the right hand. This symptom is not mentioned as occurring before the operation and does not seem to have been specially looked for then.

Walton and Paul relate the case of a young woman (Case II.), who had had numbness of the left arm and leg of gradual onset, commencing about six weeks before she was seen, Nov. 17, 1900. Five days after this date she had a sudden left hemiplegia. An operation was performed by Dr. J. C. Warren and a subcortical cyst was found. "The center of the flap was planned to fall just posterior to the fissure of Rolando at the height of the motor centers of the arm." In this case astereognosis was an early symptom, having been detected previous to the onset of the hemiplegia. The patient died and there was no autopsy.

Another case (Case IV.) reported by the same writers showed a hemorrhagic focus and a more or less diffuse lesion in and beneath the cortex in the upper portion of the ascending parietal



convolution. The boundaries of the area affected could not be determined. Astereognosis was noted after the operation.

Dana (Case III.) relates the case of a boy sixteen years old, who, in connection with other sensory symptoms and with hemiparesis of the left extremities, had an astereognosis of the left hand. On operation there was found a spindle-celled sarcoma which infiltrated both pia and cortex of the middle of the anterior central convolution and involved the cortex over the base of the second frontal. It could not be wholly removed and the sensory condition seems to have remained much the same after the operation. This case might be classed among the cortical.

Mills (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1901, p. 605) mentions a case of ataxia and astereognosis of the left upper extremity, in which there was a large area of softening, confined so far as could be determined by the naked eye to the superior parietal lobe.

Collins (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1901, p. 613) states that the most typical astereognosis he ever saw was produced by a subcortical tumor in the middle of the Rolandic area, which had not wholly pierced the cortex.

Verger has reported a number of interesting cases with autopsies, in which, after destruction or injury of the system of projection fibres from the thalamus to the cortex or of the thalamus itself or the internal capsule, the sensation was affected in the paralyzed and contiguous portions of the body. A detailed description, as far as possible, of the various forms of sensation involved is given. Unfortunately, in these cases astereognosis is not mentioned, and, although we might be justified in assuming its existence, we have no absolute evidence of its occurrence. Case XXXII. seems to be the only one in which its presence is definitely affirmed.

Verger (Case XXXII). Left hemiplegia; left astereognosis of hand. Autopsy showed an old hemorrhagic focus in the postero-external portion of the thalamus. It was elongated transversely and its external extremity invaded the median portion of the posterior segment of the internal capsule. Its height was very moderate, scarcely exceeding the level of the section.

Eskridge and Rogers, under the title of "Traumatic Hemorrhage in the Centrum Ovale Beneath the Left Angular Gyrus,"

report a case in which there was total astereognosis of the right hand and a partial astereognosis of the left. A hemorrhagic focus was found in the anterior portion of the occipital lobe.

The famous case of Mills and Keen needs merely to be referred to. In this there was an endothelioma, with cystic formation, situated chiefly in the corona radiata, not directly involving the thalamus. In its growth it had gradually encroached upon and involved the cortex of the superior parietal convolution. Astereognosis was an early symptom.

My patient was a business man, 58 years old, born in Massachusetts and living in Boston. I saw him in consultation with Dr. Arnold, who was temporarily in charge of the case, on the 11th of July, 1902.

He had been for some time addicted to alcohol, but there was no history of any venereal disease. He was unmarried.

About the 1st of May preceding he began to notice a numbness of the left arm and leg and occasionally of the right leg, and his lower extremities often felt as if they were asleep. He was often unable at night to determine the position of his legs and they would become lost in the bed-clothes.

This condition, however, does not seem to have troubled him much, and it was not until six weeks later that he consulted Dr. Withington, of Boston, his family physician. The most prominent symptom then found was astereognosis of the left hand, with which he was unable to recognize objects. The sensation of the left upper extremity (presumably to touch and pain) was normal. There was some lack of muscular sense in his left hand. The strength of the left grasp was good and there was no evidence of any weakness of the left upper extremity. He has had an increasing inability to execute certain movements with the left hand.

The left lower extremity is in a somewhat similar condition. The sense of location and astereognosis do not appear to have been tested, but the common sensation and muscular sense were the same as in the upper extremity. His gait has been becoming impaired of late. He drags his left foot, and while, if once started, he can walk in a straight line, he complains of an increasing lack of equilibrium. No Romberg present. There was marked exaggeration of the knee-jerks; the plantar reflexes were normal. The right extremities were normal.

Two weeks later it was recorded that his power of walking was less, and towards the end of June he was confined to his room. He would fall unless he could support himself by the wall or otherwise.

When examined by me July 11th his condition was as follows: He had double optic papillitis. Sensation was diminished to touch over the right lower face. The right extremities were normal. There was no definite weakness of the left extremities, though he dragged the left foot in walking. His strength in elevating the legs and in flexing at the knees was good, and all motions of the left upper extremity were strong. The left grasp was equal to the right at this time.

In the left upper extremity the sensation to touch and pain was normal. The temperature sense was good. There was a diminution of the muscle sense in the left hand and an inability to distinguish between one or more points touched simultaneously over the whole extremity. There was astereognosis of the left hand and of the left forearm, as tested by placing various objects against the skin. There was inability to touch the nose with the left forefinger when the eyes were closed and in passing objects from his left hand to his right the hands often failed to meet. Triceps reflexes normal.

In the left lower extremity the sensory conditions were essentially the same except that the sensation to heat was diminished and the muscular sense was not impaired. The tactile and pain senses were normal. The sense of pressure, as indicated by weight, was diminished. There is a loss of sense of location of touch (cannot tell which toe is touched). He feels a pencil laid on lengthwise as a point (astereognosis). There is now some static incoordination. The knee-jerks are exaggerated. The plantar reflexes normal. The Babinski reflex present.

On the 18th of July there was some general improvement in the sensory conditions and he recognized objects more easily with the left hand. Ten days later he could distinguish a heavy object from a light one with the left hand, and could name the majority of objects placed in this hand. Sensations on the left lower extremity cannot be localized and are referred to more distal regions—a prick on the knee is referred to the ball of the foot. On the 26th, left hemianopsia was noted. On the 6th of August he was noticed to have little control of either extremity, though he could now distinguish objects in his left hand fairly well. Four days later there was almost total paralysis of the left limbs. From this time he gradually failed and died about four weeks later.

#### ABSTRACT OF PATHOLOGICAL FINDINGS.

Anatomical Diagnoses: Arteriosclerosis; chronic diffuse nephritis; brown atrophy and fatty degeneration of the heart muscle; glioma of corpus callosum.

Brain, with tumor and fluid in ventricles, weighs 1490 grams. Dura tense, with somewhat swollen arachnoidal villi. Pia opaque



from enclosed fluid. Pial veins moderately injected. Convulsions flattened, though not markedly and not more upon right than upon left side. After withdrawing about fifty cubic centimeters of clear fluid from each ventricle, an ill-defined increase in consistence, not evident in the uncut brain, is made out over the right vertex.

Upon incision into ventricles, a mass is found in the right side of the corpus callosum, of firm, almost leathery consistency, with a rose gray, moderately vascular interior, containing in places a number of small globular cysts of irregular size, never reaching



Fig. 1.—Frontal section of right hemisphere taken at a plane about 10 cm. posterior to frontal pole (Dejerine's series No. 99). Cross-hatching indicates position of tumor, the borders of which are indefinite except where it abuts upon ventricle.

Fig. 2.—Frontal section of right hemisphere, taken at a plane 8 cm. posterior to frontal pole (Dejerine's series, No. 80). Cross-hatching indicates position of tumor.

one centimeter in diameter, enclosing a clear fluid, or occasionally a jelly-like coagulum.

Upon frontal section, the tumor is found to extend from before backward 8 cm., beginning at a point 5.5 centimeters posterior to frontal pole. The inner limit of tumor is the outer wall of the right lateral ventricle, reduced in the hardened specimen to a slit; but something is still evident of the displacement of median structures toward the right, seen in the fresh brain. The tumor

is ill-defined externally and in places approaches somewhat closely the cortex.

The structures directly involved in the tumor are: The genu, tapetum, and forceps major of the corpus callosum on the right side, with greatest development in the tapetum. The corona radiata and centrum semiovale, for a distance antero-posteriorly corresponding with the extent of the lateral ventricle.

Microscopically, the tumor gives a somewhat striking picture of (a) many multinucleate or giant cells, which show characteristically a rim of large, oval, vesicular, overlapping nuclei, surrounding a clear or homogeneously staining cytoplasm, in which are varying numbers (a pair to scores) of dots, or small rods arranged V-fashion, aggregated in solid groups in a clearer space in the cytoplasm, or occasionally disposed about the clear space, making it seem like a lumen; (b) varying numbers of coarse and fine neuroglia fibrillæ; (c) a moderate number of vessels.

The microscopical picture indicates that the tumor was derived from the ependyma of the lateral ventricle. The original focus is impossible to determine; but is probably opposite the juncture of the genu with the body of the callosum.

Secondary degeneration of the pyramidal tract occurred, probably somewhat late in the course of the disease.

The evidence at the present time derived from autopsies and operations simply tends to confirm the conclusions already reached by Verger and others in regard to affections of the sensibility in general, that in connection with the loss or impairment of certain other forms of sensation, the presence of astereognosis may be caused by lesions of the cortex, by lesions of portions of the thalamus, and, probably, of the internal capsule, and by destruction or injury of the projection fibres running from those regions to the cortex.

As regards the value of astereognosis as a localizing symptom, we can only say that when it occurs alone it rather suggests sub-cortical affections, usually pressure. On the other hand, when in combination with other symptoms, it may serve to confirm or strengthen the diagnosis, but only aids in determining the localization within the wide limits mentioned.

It seems hardly necessary to refer again to the fact that astereognosis occurs also in affections of the medulla, as in Dercum's case of chondrosarcoma, published in 1899, and has been reported in affections of the spinal cord and even in multiple neuritis.

FRACTURE OF THE BASIS CRANII FOLLOWED BY ATROPHY  
OF BOTH OPTIC NERVES AND PECULIAR PSYCHIC  
PHENOMENA.

BY O. WATERMAN, M.D.,

AND

B. POLLACK, M.D., OF BERLIN.

(From the Policlinic of Prof. P. Silex, of Berlin, Germany.)

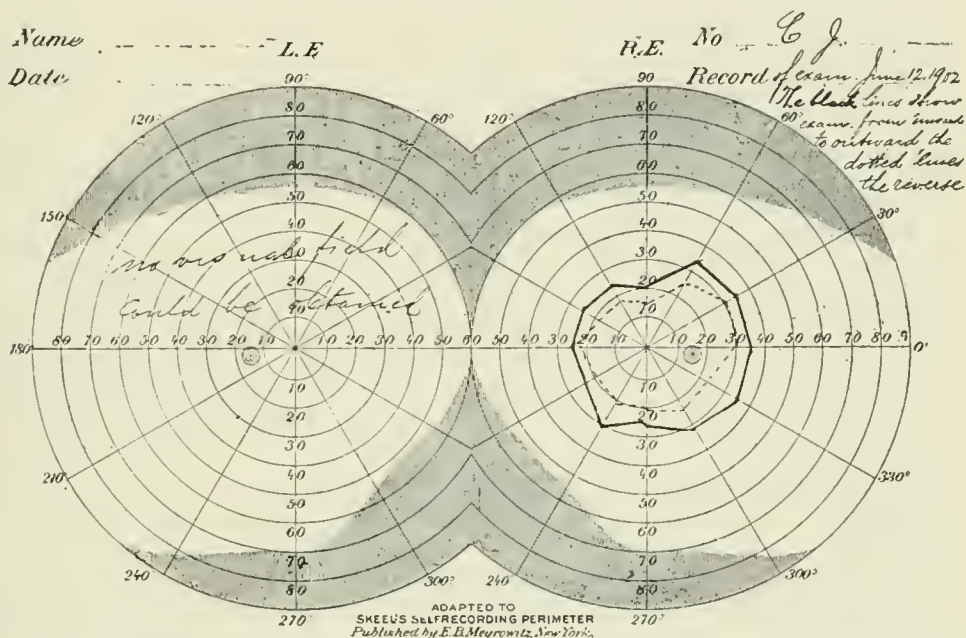
Injuries to the nervous system by trauma often produce symptoms, which make it extremely difficult to distinguish between functional and organic lesions, and only a thorough study of the case at issue is able to save us from a grievous mistake in our diagnosis. The presently described case, which, however, shows the combination of functional and organic nerve lesion, might serve as a fitting illustration of this fact.

C. J., 26 years old, married, a railroad switchman at Berlin, Germany, was injured while weighing cars, June 6, 1902. The handle of a car struck him over the left eyebrow, lacerated the skin and underlying tissue, the wound being 5 centim. long. The man was unconscious for a short time, and had to be taken to a neighboring hospital, where he was bandaged and subsequently sent home. For a number of days he could not be induced to speak, nor would he answer any questions. With his eyes open, he simply stared into space. During that time blood oozed from his nose and mouth, and the hemorrhage continued until a week after the injury. About this time he began to speak again; his whole character, however, had undergone a complete alteration. Heretofore he had been a good-natured, jovial sort of a fellow, had provided for his wife and child, and was always sober and industrious. Now he had changed. He remained all day sitting in the same position, brooding and apathetic; neither wife, child nor any person could excite his interest. When asked questions persistently, he trembled like a leaf. His sleep was disturbed; often he jumped from his bed during the night, asserted he saw persons who wanted to kill him, and appeared very much excited and frightened. At other nights he paced restlessly through the room, whistled and believed himself at work in the railroad yard. At such times the perspiration rolled copiously from his face.



When frightened he seemed to look for an exit to escape, but he peculiarly never attempted to flee from the house. Frequently he abused his wife, who is very devoted to him, even chastising her bodily. His appetite is very poor, and he often refuses to eat, claiming his wife intends to poison him. In view of this, he was taken to the Royal Charity Hospital and placed in the ward for the insane. There he remained seven weeks, and was permitted to be taken home by special request of his wife. For a few days he seemed more quiet and reasonable, so that even an attempt was made to give him some light employment as doorkeeper. Two hours later, however, he collapsed, was unconscious for several hours, and was again taken to the hospital, where he remained a number of days.

Patient was brought to our polyclinic June 12, six days after



Examination of June 12, 1902. The solid lines show the visual fields examined from within outward; the dotted lines the reverse.

the accident, for the first time. The examination resulted as follows:

Patient is of medium height, not well nourished, and looks pale. He complains of pain over the eyes and in the occipital region. He has no desire to speak, and answers questions, when persistently asked, slowly and in monosyllables.

Examination of eyes: O. D. V. = 5/15 (+ O, 5 D). O. S. V. = alleges he can only count fingers right before the eye; *re vera* 1/15, later 2/15; reads Schweigger 3, 5 ? stereoscopically.

Perimetric examination of left eye negative; the right shows a large concentric contraction of the visual field, as demonstrated

by the accompanying table, the black lines showing the limits, taken from inward outward, the dotted lines those from outward inward. Movements of the eyes are free, blepharospasm. The fundus of both eyes appears normal; the pupils do not vary in size. The reaction of the right pupil to light and accommodation is prompt; the left reacts slowly and insufficiently. Consensual reaction prompt. The other nerves of the brain do not show any abnormality. The patellar tendon reflexes are weak. The diagnosis at that time was post-traumatic hysteria.

The second examination took place December 12.

Patient looks anemic. His face is perfectly expressionless and masklike. The corrugator supercilii is much contracted. Though he complains of pain in the head, his skull is nowhere sensitive to percussion, except over the left orbita, the seat of the original injury.

Movements of the eyes apparently free. Blepharospasm of both eyes. Visual power: O. D. V. = 5/20 (+ O, 5 D). O. L. V. = Movements of the hand noticed right before the eye. Perimetric examination of right eye as before.

Ophthalmoscope showed right fundus without abnormality; the left papilla was distinctly excavated.

*Olfactorius*—Complete anosmia left.

*Oculomotorius, Trochlearis, Abducens*—Normal.

*Facialis*—Normal, except the blepharospasm mentioned.

*Trigeminus*—The complete sensory portion of the left side, viz.: Conjunctivæ, cornea, skin, mucous membrane completely paralyzed.

*Acusticus*—Complete anacusis left.

*Gustatory portion of glossopharyngeus*—Left side completely paralyzed.

*Sensibility*—Anesthesia and analgesia of entire left half of the entire body from the middle line, and extending from the scalp to the sole of the foot, even penis and scrotum being half anesthetic.

*Motor power* of left side much weaker than right, and moderate atrophy of left biceps and thenar and hypothenar. The left leg is dragging while patient walks.

Electric examination fails to show degeneration reaction.

Patellar tendon reflexes of both legs are exaggerated. Abdominal and hypochondriac reflex of the right side well pronounced, left hardly noticeable.

Cremaster reflex, left, absent.

Neither Romberg nor Babinski phenomenon.

All other organs apparently healthy.

*Psychic examination*—Patient attended the public school until his fifteenth year; he has passed all grades except one without

difficulty. He never showed lack of comprehension, nor was he inattentive or negligent. At this examination his face shows no mimic play, and he is void of intelligent observation. The muscles of his forehead are deeply contracted. He answers questions only when repeatedly asked, and his remarks and answers are neither prompt nor thoughtful. Simple arithmetic problems he solves as follows:  $8 \times 5 = 45$ .  $7 \times 3 = 26$ .  $3 \times 12 = 41$ . Others he fails to solve altogether. He lives in Berlin, but does not know that a river flows through the city, nor can he give the river's name. Never heard of it. Being asked the German emperor's name, he hesitated, and after two minutes' time answers: "Wilhelm," but whether the first or second he is unable to say. When questioned whether it would grieve him if his only child should die, he merely answered, "No; he had also to die." He says the railroad officials are persecuting him; they wanted to keep him in the asylum, and if he could have a chance to get at them, he would take a knife and kill them. He is, however, not able to give any reason why these men should wish to harm him. Since the accident patient has been sexually impotent. The family history is in regard to nervous or mental diseases, as well as cancer or tuberculosis negative. Patient has never had any serious illness, nor has he ever been infected with lues. He drank and smoked but very moderately. His wife is healthy and never had any miscarriage. The only child, one and three-quarter years old, is also healthy.

Examination of February 11, 1903:

Eyes: O. D. V. = 5/25 Fundus normal. O. L. V. = Complete amaurosis. Complete white atrophy of optic nerve. Otherwise no change.

Examination of March 20, 1903: O. D. V. = 5/25. The optic nerve shows distinct signs of white atrophy, the temporal half being much paler than the nasal. Otherwise no change.

Before entering into the pathogenesis of the case, we will try to develop the diagnosis historically.

During the first examination, patient asserted that he could only count fingers directly before the left eye. It was, however, determined that, *re vera*, he could see 1/15 and later even 2/15. In addition to this appeared the concentric contraction of the visual field of the right eye, the weak patellar tendon reflexes and the psychic condition. From these symptoms at that time, the diagnosis—"post-traumatic hysteria"—seemed justifiable; remarkable, however, was the insufficient and tardy reaction of the



left pupil to light and in accommodation, while the consensual reaction was prompt; and also the decrease of vision of the left eye in conjunction therewith. This ought to have raised some doubt as to the correctness of this diagnosis.

At the second examination appeared as a prominent symptom the hemianesthesia. This fitted well into the frame of the hysteria; but in the meantime the condition of the left eye had become such that no doubt could exist that an organic lesion of the optic nerve must have occurred. We had now almost complete left amaurosis; the pupil did neither react upon light nor in accommodation, and the papilla showed a distinct excavation, which had not existed at the time of the previous examination. In view of these facts, we could rightly assume that we had to deal with a combination of an organic nervous lesion with a functional neurosis, and the subsequent atrophy of the left optic nerve proved this to be correct. And now had the contraction of the visual field of the right eye a different meaning also. Gradually the sight of this eye was reduced from 5/15 to 5/25, and at the examination of March 20 we could state that the right optic nerve was in a stage of beginning white atrophy, the temporal half being decidedly paler than the nasal. The injury which caused the left optic atrophy must have extended also to the right optic nerve. With the explanation of this condition, we will now enter into the pathogenesis of the case.

A dull instrument struck the patient on the left frontal bone at the orbital margin, causing a lacerated flesh wound 5 cm. long. The patient was unconscious during a short time, and blood oozed from mouth and nose. We might mention that this last condition was not ascertained at the first examination, but was only detected at the second. Six days after the occurrence of the accident it was found that the sight of the left eye had been almost completely lost, and that the visual field of the right eye was contracted materially. We have consequently to conclude that the base of the skull had been fractured, the fracture being an indirect one, caused by contre-coup. We must assume that the fracture commenced at the sella turcica, hence the hemorrhage from the mouth; thence it extended through the lamina cribrosa, the horizontal plate of the ethmoid, which explains the nose-

bleeding. From there the fracture involved the lesser wing of the sphenoid and the canalis opticus. This view is supported by the important examinations of Hoelder (*Graefe-Saemisch's Handbuch*), who found in his autopsies among 86 fractures of the base, 43 of the canalis opticus. Generally the upper wall of the canal is fractured, and the fracture goes in an anteriorly convex arch to the margin of the lesser wing of the sphenoid bone, as a result of which the anterior clinoid process is broken off. In our case it is evident that the left optic nerve was, by virtue of the fracture of the canalis opticus, almost totally lacerated; which is fully understood, if we remember that the upper part of the sheath of the optic nerve is most intimately attached to the periosteum of the canalis opticus. We might mention that the oral and nasal hemorrhage could have also been caused by a fracture of the petrous portion of the temporal bone, the blood in this case finding a passage through the Eustachian tube into the pharynx; and the left anacusis would find an explanation even in this supposition. The acoustic nerve, however, runs in such close proximity to the facial, that an injury of one must involve the other also, which we know is not the case; and, furthermore, we easily see that the left-sided deafness is only a part of the general anesthesia and of the disturbance of the sensory nerves of the entire left side. Likewise we have to exclude the possibility of the optic nerve being injured at the chiasma or the optic tract, for in such case a hemianopsia would have been the necessary consequence, which did never exist.

Somewhat more difficult is the explanation of the condition of the right eye; but the initial contraction of the visual field, the subsequent reduction of sight and the final atrophy of the optic nerve after nine months permit us to conclude that the optic canal of the right side was likewise fractured or fissured. The injury here, however, was of a degree much more moderate, in consequence of which the optic nerve itself was originally not much injured, especially not in the maculo-papillary fibers, which explains why the central sight was fairly good, while the periphery had already suffered. The subsequent atrophy, we might well assume, was caused by direct pressure upon the optic nerve during the process of reparation of the bony fracture of

the optic canal and by the formation of callus. The late atrophy might be explained by the experience of Bergmann, according to whom the reparation of the fractures of the skull are much slower than those of any other bones of the skeleton. Especially is this the case with fractures of the base. There also might have taken place a minor hemorrhage into the vaginal sheath of the opticus, which was observed in cases of basal fracture by Hoelder. This would in no way change the aspect of the issue, but we wished to mention it, nevertheless.

Speaking now of the psychic condition of the patient, we find a distinct psychosis, which we can term a depression, with hallucinations, and we also see symptoms of grave hysteria. The most prominent symptom of the latter is the left-sided hemianesthesia. The only other hemianesthesia which could come here into consideration would be that which is caused by lesions of the most posterior part of the inner capsule; but that certainly would affect the opposite side, and we have no cause to assume that the right internal capsule could have been injured in this case.

The psychosis, which resembles melancholia in its different forms—agitata, attonita and hallucinatoria—is probably caused by lesions of a subtle nature to the cortex, and the severe disturbance of intellect could not be otherwise explained.

The blepharospasm, we do not think, is of a hysterical nature, but rather believe that it is caused by the injury to the optic nerve. Wilbrand and Saenger have recently mentioned analogous observations.

The paretic condition of the left lower extremity, demonstrated by the patient dragging the left leg while walking and by the diminished motor power and the moderate atrophy of the left arm, could be considered hysterical, especially because no degenerative reaction was shown, but that the atrophy was most outspoken in the biceps of the arm and the thenar and hypothenar of the hand speaks more for lesion of the spinal marrow, which is at the present time too obscure to be correctly located. Probably at some later period we will have more light on this point.

Summarizing, we wish to acknowledge that the case we have presented is not yet clinically closed, and our conclusions and



claims have not been proven upon the dissecting table; yet we feel that we may be justified in publishing the same, many points being of unusual interest, and no analogous case having been found in the pertinent literature.

First—We have a severe organic lesion to the second cranial nerve, and in connection therewith the symptoms of a severe functional neurosis; in addition we have not alone a mental disease without a hereditary, toxic or specific basis, but also peculiar distinct symptoms, which belong exclusively to spinal diseases.

Second—The time, which lies between the original injury and the atrophy of the optic nerves—8 resp.  $9\frac{1}{2}$  months—is quite unusual. In the cases of fracture of the base found in the literature, few weeks, not even months, sufficed to show the first signs of atrophy, which developed latest in two or three months.

Third—From the first examination we might easily see that the attending surgeon suspected the patient to be, if not a simulator, at least an exaggerator, while the man was practically blind upon the left eye. This teaches us to be careful in our judgment, because in general we are too much inclined to go into examinations of post-traumatic neuroses with a certain prejudice against the truth of the statements of the patient, which was in this case instrumental in influencing the original diagnosis.

Fourth—We like to plead that in cases of post-traumatic neuroses, which so frequently occur after railroad accidents, the expert testimony ought to be given only by neurologists, who are the competent judges of this class of cases.

Closing, we beg to thank Prof. P. Silex for his permission to describe the above case, and to Dr. A. Hayn for the help extended.

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## Society Proceedings

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### NEW YORK NEUROLOGICAL SOCIETY.

December 1, 1903.

The President, Dr. Pearce Bailey, in the Chair.

*A Case of Brain Tumor with Autopsy.*—Dr. William Leszynsky reported this case. The patient was a girl of nineteen, a stenographer and typewriter by occupation. She was admitted to the Eye and Ear Hospital on January 12, 1903, and was seen in consultation with Dr. H. Jarecky. She was totally blind as a result of intense papillitis. The eyeballs were slightly prominent and rigid. She had never indulged in alcoholics, but had used tea excessively. Nine months ago she had begun to suffer from unusually severe occipital headaches, generally at night while asleep. The more severe attacks were accompanied by vomiting. There had also been severe attacks of vertigo. Two months previously she suddenly became blind in the right eye, and one month later the left eye became similarly affected. She remained in the hospital about two months, during which time she complained of frequent and severe headache in the right temporal and parietal regions, associated with tonic left facial spasm. Involuntary urination occurred from time to time. There was a slight paresis of the left facial distribution. The left knee-jerk was more pronounced than the right, but ankle clonus was absent. The urine was negative. The pulse was about 78. She received a thorough course of iodide of potassium and mercurial inunction without improvement. Dr. Leszynsky's diagnosis was cerebral tumor involving the right hemisphere. The patient was admitted to his service at Lebanon Hospital on March 7, but would not consent to an exploratory operation. She could not recognize by touch any familiar object with the left hand. The convulsive attacks gradually increased in frequency, there being later clonic movements of the face, and nystagmus with retraction of the head. On May 18 there were several attacks of sudden vertigo associated with tonic and clonic spasm of the left side of the face and left arm and leg. Towards the end of May, in addition to a pronounced facial paralysis, the orbicularis palpebrarum became decidedly paretic after a few weeks. The Babinski reflex was exquisitely demonstrable on both sides. During her stay in the hospital the pulse varied between 98 and 100, the respirations were 24, and the temperature 98 to 99 degrees F. On May 30 she was admitted to the Presbyterian Hospital to the service of Dr. McCosh for operation. On June 6, while conversing with Dr. Leszynsky, she suddenly became unconscious, and the limbs were rigidly extended. Both eyes were closed, the face was pale and the pulse was regular. There were no clonic movements. After about three minutes there was complete muscular relaxation, and rapid and almost abrupt return to consciousness. On June 9, Dr. Starr concurred in the diagnosis, and thought there might be multiple lesions. Two radiographs were made, one anteroposteriorly, and the other laterally. The operation was done on June 11, 1903, under chloroform, a flap being raised over the fissure of Rolando. The intracranial pressure was found to be markedly increased. At the depth of an inch and a half, in the di-

rection of the right lateral ventricle, cerebrospinal fluid was reached. No tumor formation was discovered. A silkworm gut drain was inserted, and after operation between one and two pints of this fluid drained away each day. Following the operation there was, for a short time, a complete left hemiplegia with rigidity. She died on July 8 from lobar pneumonia, four weeks after the operation and seventeen months after the symptoms of brain disease. The autopsy was made fifteen hours after death by Dr. George A. Tuttle. The examination was limited to the brain and its contents. The brain tissue in the region of the operation was quite soft. A soft red mass was found in the right ventricle, about the size of an egg, which apparently sprung from the inner wall of the ventricle. The tumor was thought to be a glioma. There were two organized blood clots in the ventricle. Macroscopically, all the other portions of the brain and meninges appeared to be normal.

Dr. J. F. Terriberry said that he had seen this case at the Manhattan Eye and Ear Hospital. The astereognosis was one of the most prominent symptoms at that time. The young woman had spasmodic contractions of the face muscles, first on one side and then on the other. The importance of the astereognosis as a localizing symptom had been forcibly impressed upon him by this case. If these symptoms coming from the basic area of the brain had occurred earlier, they might have led to an erroneous diagnosis.

Dr. George W. Jacoby said that the most interesting part of the report to him was the demonstration of the X-ray plates. In the skiagraphy of tumors of the brain we possessed a very valuable adjunct, but we should insist upon more precision in the description of these examinations. Over a year ago he had exhibited to this society two skiagraphs of a case of tumor of the brain, taken during life. The patient was subsequently operated upon, and the tumor removed, and the patient lived five months longer. This case proved the feasibility of obtaining skiagraphs of practical value in these cases of tumor of the brain. Oppenheim's experiments in this direction were very interesting. He had experimented with a hardened tumor in the brain and with a hardened tumor within the skull, and had succeeded admirably, but had failed on attempting to photograph brain tumors during life. Dr. Jacoby said that he had repeated these experiments, and had discovered that when soft or fresh tumors were used the result was not successful. Since that time he had made many clinical examinations on supposed brain tumors without obtaining a single positive result until the one presented by him a year ago. This experience showed that one should work with a known tube and with a known exposure to determine what would give a complete transillumination of the skull. Having done this, the minimum exposure should be used—say,  $7\frac{1}{2}$  or 8 minutes—and then each successive exposure should be made a little longer. In his own successful case exposures of  $10\frac{1}{2}$  and  $11\frac{1}{2}$  minutes respectively were successful, whereas longer and shorter exposures led to failure. It had been thought by some observers that the result would only be successful with a thin skull and a hard tumor, but in his own case the bones of the skull were thick and the tumor friable.

Dr. Leszynsky said that within the last two months he had examined two patients who undoubtedly had brain tumors which could not at the time be accurately localized. In each case there was astereognosis present on one side, yet when seen again the astereognosis was very variable, being present at one time and absent, perhaps, half an hour later.

*Is Epilepsy a Functional Disease?*—Dr. M. Allen Starr was the author of this paper.

Dr. C. L. Dana said that he was surprised that the author apparently assumed that we did not believe that epilepsy was an organic disease. At



least ten years ago, the speaker said, he had spoken of epilepsy as a progressive degenerative disease of the brain, but as we did not yet know always what was this degeneration, or where it was, and could not give a morphological description of the diseased cells, it was probably wise to still describe epilepsy among diseases without definite organic basis. He also doubted if the term disease was the proper one to use in connection with epilepsy. There was certainly an underlying organic degeneration, but it seemed to him that in many cases it was rather a morbid condition than a disease process—rather a teratological defect than an actual disease. So far as we know now it was probable that the most important factor underlying epilepsy was the tendency of large groups of nerve cells to undergo a rather progressive degenerative process. With regard to the argument about Jacksonian epilepsy, he would say that the author's statements were not strictly correct. Some forms of Jacksonian epilepsy were as much without known organic basis as ordinary idiopathic epilepsy. He had had a case of Jacksonian epilepsy with classical convulsions confined to one arm and one side of the face, lasting for years, and after death a modern autopsy gave absolutely negative results. With regard to the incurability of epilepsy he would say that the stand taken by Dr. Starr seemed to him not only incorrect but disheartening and unfortunate. He knew absolutely of cases in which epilepsy had been cured. He knew personally of a young man who, at the age of seventeen, had nocturnal epilepsy for one or two years, the attacks coming as often as two or three times a month. He had seen the attacks himself, and they were perfectly characteristic. Under the bromide treatment this man recovered, and was now forty-five years of age, and had never had an attack since. There were now none of the interconvulsive symptoms of epilepsy, and this disease should be looked upon as cured just as much as a pneumonia might be considered cured. He had another patient who had been well for twenty years, and another for fifteen years. The very theory of the disease, assuming it to be organic, would make a cure possible. We knew perfectly well that there were certain degenerative processes that we could arrest; for example, tabes and degenerative processes affecting the kidneys or liver, for degenerative processes were not always progressive.

Dr. L. Pierce Clark said that Dr. Dana's statement about the curability of epilepsy had interested him, because, in an experience of ten years with epilepsy, he had records of at least two or three dozen who had remained free from epileptic attacks for periods varying from eight to twenty years. It was true that they might run eighteen or twenty years and recur again, but in such cases he would look upon them as practically cured, although the original condition might still persist. He agreed with Dr. Starr that idiopathic disease had an organic basis. He did not believe that the mere existence of an organic disease of the brain was sufficient to account even for the epilepsies of the Jacksonian type. He believed that perversions of nutrition or toxic agents were potent factors.

Dr. William Hirsch asked Dr. Starr for a definition of what he called organic or functional. From a strictly biological point of view, he thought, we could not make such a distinction between organic and functional. That a disease was organic did not by any means justify us in calling it incurable. When one made a diagnosis of paranoia, one knew it was an incurable disease, and yet it was classified all over the world as a functional disease because no one had as yet detected any organic changes in the central nervous system. The fact that Jacksonian epilepsy was frequently due to organic changes, which we recognized as such, did not prove that general epilepsy must have a change analogous to that of Jacksonian epilepsy. As Dr. Dana had pointed out, there were cases presenting quite characteristic at-

tacks of Jacksonian epilepsy. He had in mind cases of general paresis, and particularly one case, in which death had been preceded by a very large number of these attacks, yet a careful autopsy on this patient was absolutely negative. On the other hand, there were cases of organic disease, tumors of the brain and arteriosclerosis in which epileptiform attacks never took place. We were all familiar with eclamptic attacks, attacks due to poisoning, and dependent upon transitory changes in the brain. It was manifest that all cases of epilepsy could not be said to have an organic basis.

Dr. William H. Thompson said that the function of a lamp was to give light, and for that purpose its structure might be a glass globe, a wick, and a reservoir of oil. If any portion of that structure were damaged it might interfere with its light-giving function, but this same function could be entirely abolished without in any way interfering with its mechanism, i.e., by supplying it with water or poor oil. Similarly, he conceived functional nervous diseases as derangements of the source of nerve function independent altogether of the structure of the brain—i.e., the blood. Functional disease might be so serious as to terminate life, and yet no nerve cell or fiber could be demonstrated to be diseased, the disorder perhaps having been entirely due to a toxin in the blood. He could not believe that a disease characterized so strikingly clinically by intermittency as was epilepsy could consist essentially in a structural lesion, nutritive or otherwise. He fully agreed with Dr. Starr that epilepsy was not curable by the surgeon, and, indeed, that a surgical operation upon the brain was apt to be followed by epilepsy. A polypus of the nose sometimes gave rise to an intermittent nervous trouble, asthma. He had a number of cases in which the removal of a peripheral source of irritation had been followed by a permanent disappearance of epilepsy. With regard to the true pathology of epilepsy, we were often misled in regarding epilepsy as due to a discharge in the cerebral cortex. This notion he could not reconcile with the fact that every efferent impulse was always secondary to an impulse from the afferent side. His definition of epilepsy was "a *sudden* derangement of the normal inhibition of cortical centers upon one another, dependent, in the first instance, upon an abnormal afferent impression." The majority of cases of epilepsy he believed to be the result of toxemia. That epilepsy, with such widely varying manifestations, should be dependent upon one organic disease of the brain, he could not believe.

Dr. S. F. Hallock thought if we carefully investigated the psychical side in the early history of many cases of epilepsy we would obtain a strong argument for the organic origin of the disease.

Dr. Joseph Collins said that he personally felt no urgency in putting epilepsy into the camp of organic diseases, neither did he think Dr. Starr had presented any reasons for such urgency. That we might find epilepsy to be an organic disease he hoped, and he also hoped that if such discovery were made we would find the means of coping with this disease; yet Dr. Starr seemed to take a hopelessly antagonistic view on this point. Personally, he had never been taught to look upon Jacksonian epilepsy as an organic disease, the point upon which Dr. Starr seemed to found his main argument. He supposed that about 25 per cent of the cases of idiopathic epilepsy presented Jacksonian attacks, but this phenomenon he looked upon as only an indication that the irritation proceeded from a certain portion of the brain. He understood this was Hughlings Jackson's view. He knew of no organic disease which came on in the first decennium of life and continued practically for the full natural term of life; in other words, a disease that did not cut life short. He did not know of any cases of epilepsy which had been studied in the intervals of the attack except where the observations had been interfered with by medicinal treatment to such an



extent as to render these observations of no value. It had been stated this evening by several persons that changes in the brain in epilepsy had been found with a certain degree of constancy by well recognized neuropathologists. He would say that these changes were not to be compared in any way with those which occurred in the cell bodies of the neurones in a case of poisoning by bromide of potassium, administered accidentally to a patient in Toronto a year or two ago. He thought Dr. Starr must be persuaded to modify his statement regarding the incurability of epilepsy before the publication of his paper, because it would otherwise give rise to an almost immeasurable amount of despair. He did not think there was any real justification for such pessimism. Personally, he knew that cases of epilepsy did get well, or at least practically so, and he believed we were already able to cope with epilepsy with fair success.

Dr. Thomas Prout said that he had studied a good deal of pathological material sent him from the Craig Colony by Dr. L. Pierce Clark. The cases dying in status epilepticus presented a uniform lesion of the cortex. In ordinary idiopathic epilepsies he found the same lesion in the cells of the cerebral cortex, but in lesser degree, and he looked upon these changes as characteristic of epilepsy. A case reported by Wright had attracted considerable attention, but this observer's methods were exceedingly faulty. The autopsy in his reported case was made fourteen hours after death and the body temperature was 108 degrees F.

Dr. Adolph Meyer asked Dr. Starr what attitude he took concerning the fact that he founded his conclusions upon the occurrence of focal symptoms in such a large number of cases of epilepsy. What would he say with regard to the fact that the removal of such lesions failed to cure the epilepsy. The word organic as commonly used implied something far more serious than the disease as described by Dr. Starr. The persistence of the epilepsy after the removal of the organic lesion would seem to indicate that there was a general disorder present.

Dr. W. M. Leszynsky said that after a number of years of clinical experience he certainly disagreed with Dr. Starr in his pessimistic views as to the curability of epilepsy. It could hardly be doubted that a certain proportion of the cases of idiopathic epilepsy were cured. Reference was made to two cases in which the patients had promptly improved, and had been practically free from epileptic attacks for several years after the bromides had been discontinued, and proper attention had been given to the general health.

Dr. Max G. Schlapp said that it should not be forgotten that epileptiform convulsions could be produced by many different things; hence, to take a symptom or a group of symptoms and dignify them with the title "organic disease" seemed to him to be going too far. We knew that in children convulsions could be brought on easily by slight irritation of the peripheral nervous system, and to say that these convulsions were produced by an organic lesion in the central nervous system was not justified by the transitory nature of these symptoms. The difference between a Jacksonian epilepsy and an ordinary epilepsy was perhaps to be found in the position of the lesion. If the irritation were beyond the motor center it was possible that the irritation would spread throughout the cortex, giving rise to unconscious and various central disturbances. The lesions described by Dr. Prout as occurring in epilepsy were found in other conditions. The principal lesions found, according to the Nissl method, were chromatolysis, and might be present in connection with various forms of poisoning.

Dr. Edward D. Fisher said that he had long believed epilepsy was an organic disease. The fact that we could produce convulsions similar to what we understood as epilepsy, did not necessarily mean that they were really epileptic. The characteristic of epilepsy was its persistence;



it was the general mental state as well as the convulsion which constituted epilepsy. We should sharply distinguish between idiopathic epilepsy and epilepsy due to any other non-irritating cause. He did not think Dr. Starr meant to give any definite pathology for epilepsy, but merely to state that it was an organic disease. He could not agree entirely with him, however, regarding the incurability of epilepsy, although he would admit that it probably was the most nearly incurable disease known. He could not conceive of a disease which went on year after year with exactly the same symptoms as at the beginning, without there being back of it an organic lesion.

Dr. Starr closed the discussion. He said he was exceedingly obliged to the society for its full and free discussion of this important topic. He was willing that his statements about the incurability of epilepsy should not be published; nevertheless, he believed, with Dr. Fisher, that epilepsy was one of the most incurable diseases we were called upon to treat. It was true that the various speakers had spoken of one or two recoveries, yet those present must have seen hundreds of cases of epilepsy. He thought this substantiated fully the position he had taken with regard to the general incurability of epilepsy. He had had no idea of establishing a pathology for epilepsy. He certainly regarded, and believed most neurologists regarded, the Jacksonian cases as organic. The same sources of irritation which gave rise to epileptic attacks were present constantly in other individuals, and hence, there was something else in epileptics. He believed in epileptic persons there was in addition to the toxemia some underlying defect, as Dr. Dana had said. It was certainly very important to study epileptics in the intervals of the attacks, and when not under medicinal treatment; he had done this frequently, and believed it was being constantly done by others.

## Periscope.

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### BRAIN

(Vol. 26, 1903, No. 102, Summer.)

1. The Nature of Inhibitory Processes within the Nervous System. W. McDougall.
2. On "Stringhalt" and "Shivering" in Horses. A Study in Comparative Neuro-Pathology. CHALMERS WATSON.
3. A Case of Erb's Juvenile Dystrophy Associated with Bilateral Enlargement of the Parotid and Submaxillary Glands. J. MITCHELL CLARKE.
4. Notes on Toxic Degeneration of the Lower Neurones Simulating Peripheral Neuritis. R. T. WILLIAMSON.
5. Chorea and Graves' Disease. G. A. SUTHERLAND.
6. The Functions of the Frontal Lobes. JOSEPH SHAW BOLTON.
7. Clinical Studies. PROF. A. PICK.

1. *Inhibitory Processes within the Nervous System.*—This paper consists of three parts: (1) a brief critical review of the present state of opinion as to the status of inhibitory processes; (2) some considerations that suggest a certain hypothesis as to the nature of such processes in the central nervous system; and (3) the description of some experiments that seem to support that hypothesis. Under the first section the author discusses the theories of Hering and Verworn, those of Wundt and Gaskell, and some of the later theories of Mercier and Münsterberg; none of these theories are satisfactory to the author. He settles down to the conviction that there are but two serious theories that are worthy of consideration: (1) inhibition may consist in the direct checking of katabolism; and (2) inhibition may consist in the cutting off of nervous influences that cause increased katabolism. As to which view the author would have us believe is not made clear. Inhibition, however, in the greater part of the nervous system, he says, in all that part concerned in the control of the skeletal musculature, consists simply in the cutting off from the tract inhibited of the excitatory impulses by which alone its activity can be maintained. When a hypothesis is sought as to the mechanism by which this cutting off of the excitatory influences may be effected, clear and unmistakable indications are afforded by certain psychological considerations. Thus inhibition is made largely a matter of mental processes, and inhibition of the excitation of one neural system is always the result of the excitement of some other system. Thus inhibition appears always as the negative or complementary result of a process of increased excitation in some other part. As to the mechanism, suggestion is but a vague guess. Such is the view the author takes of the process of inhibition in the higher brain levels. As far as inhibition in the spinal cord is concerned, the author assumes that (1) Inhibition in one part always appears as the negative aspect of an excitation in another. (2) The fact that a stimulus to a given spot of skin may cause a reflex contraction of the flexors or extensors according as the extensors or flexors have been in tonic reflex contraction for some time before the application of the stimulus. (3) A very perplexing feature of reciprocal inhibition, the fact, namely, that in the spinal animal, inhibition due to excitation of a nerve path or center is unusually quite transient, and passes over into exaltation even during the continuance of the stimulation if that be fairly prolonged; and that the reflex spinal movement, if

prolonged, tends always, in the author's experience, to be of *alternating* character. The author further gives some experimental data tending to maintain the truths of his thesis.

2. "*Stringhalt*" and "*Shivering*" in Horses.—An interesting series of observations from which the student of human pathology can learn somewhat concerning the relationship of vascular disease to nerve degeneration.

3. *Erb's Juvenile Dystrophy*.—In the case reported there was a remarkable association of general and pronounced muscular atrophy with enlargement of the parotid and, to a less degree, of the submaxillary gland. The development of both atrophy and swelling was synchronous, although the atrophy has recently progressed and the swelling remained stationary. Beyond the coincidental occurrence of the two conditions, nothing new is presented.

4. *Toxic Degeneration of the Lower Neurones*.—Dr. Williamson gives the history of an interesting case of paralysis of the small muscles of the hand and of the extensors of the fingers and wrist with paresis of the flexors. The paralysis followed an acute illness, the chief symptoms of which were pain in the limbs and trunk, which might have been due to influenza. Arsenic, alcohol, lead and diphtheria could be excluded. The chief interest in the paper was the uncertainty of diagnosis, resting, as it did, between an attack of acute anterior poliomyelitis and peripheral neuritis similar to a clinical group of cases originally outlined by Dr. Stanley Barnes.

5. *Chorea and Graves' Disease*.—Sutherland discusses the nature of the association between chorea and Graves' disease, reporting in detail the histories of two patients, both of which show that Graves' disease may follow chorea, a condition which certain clinicians have denied. The author further brings out some interesting and striking similarities between these two affections and partly suggests that, whereas the nervous symptoms present in these two diseases may not have the same cause, it may be possible that they depend on similar affections of the central nervous system; and further that it may be that in children this affection produces the symptoms known as chorea, while in early adult life it is manifested by the symptoms known as Graves' disease.

6. *Functions of the Frontal Lobes*.—The author's paper deals with the subject of the functions of the frontal lobes from the standpoint of morbid anatomy of mental disease and the general histology of the cerebral cortex in normal individuals and in the subjects of mental disease. The anterior portions of the frontal lobes are particularly dwelt upon in this paper. The author first sums up the work of preceding investigators, and then presents a summary of some of the work recently done in the London County Asylums. He says that it has been demonstrated that the amount of cerebral wasting and the associated morbid changes inside the cranium in two hundred cases of mental disease vary directly with the amount of dementia existing in the patients. The relationship is remarkably exact and the regions of relative wasting can be determined with considerable accuracy. Taken generally, for individual variations exist, the regions of wasting, from observations of several hundred cases, are as follows: (1) The greatest amount occurs in the prefrontal region (anterior two-thirds or so of the first and second frontal convolutions, including the neighboring mesial surface, and the anterior third or so of the third frontal convolution). (2) The wasting is next most marked in the remainder of the first and second frontal convolutions. (In dementia paralytica Broca's convolution should, as a rule, be included here and (2) and (3) should follow (4).). (4) It is next most marked in the first temporal convolution and the insula, and in the superior and inferior parietal lobules. In practically all cases it is more marked in the two former than in the two latter. (5) It is least marked in the remainder of the cerebrum (including the orbital surface of the frontal lobes), particularly in the inferio-internal as-



pect of the temporo-sphenoidal lobe and the posterior pole of the hemisphere. With reference to the general histology of the cortex the author presents a brief summary of the development of the different layers, and then shows what variations from the normal are to be expected in cases of mental disease. He considers it proved that the great anterior center of association, lying in the prefrontal region, is undeveloped on the one hand, in all grades of primary mental deficiency; and on the other undergoes primary atrophy pari passu with the development of dementia; *it is therefore the region of the cerebrum which is concerned with the performance of the highest coordinating and associational processes of mind.*

7. *Clinical Studies.*—Prof. Pick, of Prague, here presents a few clinical studies which are of interest. Dreamy mental states as a permanent condition in epileptic pathology, Protraction of Impression as a cause of disturbance of sensory perception; and Reduplicative Paramnesia are the titles of his studies. JELLIFFE.

(Vol. 26, 1903, No. 103, Autumn.)

1. Hughlings Jackson as Pioneer in Nervous Physiology and Pathology. SIR WILLIAM BROADBENT.
2. Tetanus Dolorosus, and the Relation of Tetanus Toxin to the Sensory Nerves and the Spinal Ganglia. W. M. FLETCHER.
3. Notes on the Minute Structure of the Human Caudate Nucleus and Optic Thalamus. JOHN TURNER.
4. Hereditary Spastic Paraplegia. Its Relation to Friedreich's Disease and Its Claim to be Considered as a Clinical Entity. H. CAMPBELL THOMPSON.
5. A Report of Two Cases of Paraplegia Occurring in Variola, One being a Case of Anterior Poliomyelitis in an Adult. WILLIAM G. SPILLER.
6. The Evolution of Consciousness. W. H. B. STODDART.
7. Lesion of the Brachium Pontis with Division of the Trigeminal and Facial Nerves. WM. CHARLES WHITE.
8. Cerebral Embolus During an Epileptic Fit. WALTER BROADBENT.

1. *Hughlings Jackson.*—Sir William Broadbent here delivers the Hughlings Jackson lecture, in which he traces the development of Hughlings Jackson's ideas. It is a very full summary of this well-known investigator's views, and shows very conclusively how large moulded a man he is. A full bibliography of Jackson's contributions to neurological science is appended, 197 titles being given. "The Study of Diseases of the Nervous System" is added to this paper. This is a reprint of a lecture delivered by J. Hughlings Jackson at the London Hospital in June, 1864. It is largely of historical interest.

2. *Tetanus Dolorosus.*—An experimental paper concerning itself largely with the methods of conveyance of tetanus toxin in the nerve trunks and their lymphatics.

3. *Minute Structure of Caudate Nucleus and Optic Thalamus.*—Turner continues his histological researches, and presents a series of pictures of the nerve cells in these two regions as studied by both the Golgi method and the methylene blue and a hydrogen peroxide method. The author says that there is a very striking resemblance between the structure of the caudate nucleus and some parts of the frontal cortex; in both cases there are similar dark cells, but those of the frontal region give off finer dendrites whose lateral appendices are more delicate. This similarity in cells might be inferred to be so since the development of the central nervous system shows that the cortex and caudate nucleus have a similar origin. With reference to the structure of the cells of the optic thalamus Turner says that many of them are quite similar to those of the caudate nucleus;

but one thing is prominent in most of the thalamic sections: that is a wealth of big spider cells which send out numerous, short, rather wavy, not very sharply defined branches. Further are technical details too minute for general consideration.

4. *Hereditary Spastic Paraplegia*.—The relation of this disease to Friedreich's ataxia is discussed. In his summary the author concludes that in hereditary spastic paraplegia a disease is present which clinically shows itself by a premature degeneration of the lateral tracts with the posterior. Possibly other columns occasionally participate to some extent. It has a tendency to run in families and apparently, though to a less extent, to be actually hereditary; isolated cases are also frequently met with. There is a very close relationship between it and Friedreich's disease, but it is distinguished from the latter by the predominance of the spastic symptoms, although here and there, as might be expected, the two practically merge into one another.

5. *Two Cases of Paraplegia in Variola*.—Dr. Spiller reports these cases, in one of which, a woman, the paralysis occurred during the third week; in the second patient the paralysis occurred eight days after the onset of the disease. Schamberg, from whom the patient was referred, states that in 2,800 cases of variola observed in the Municipal Hospital during the past two years, there were seven instances of paralysis; three of the patients recovered, while four died. In the cases under discussion Dr. Spiller reports that nothing distinctly abnormal could be detected in the spinal chord of the first case. In the second case, however, the gray matter was chiefly affected, and in the lumbar portion of the spinal cord the white matter was scarcely implicated at all. In the lower cervical region a small area in one anterior horn of one of the sections could be found staining a very light color by Weigert's hematoxylin method, showing that the medullary sheaths of the nerve fibers within this area had disappeared. The white matter was only slightly implicated! Some black spots were found by the Marchi method scattered over the transverse sections, indicating diffuse degeneration from lesions lower in the cord. About the mid-thoracic region the gray matter of the anterior horns was chiefly affected, and portions of it stained very faintly by the Weigert hematoxylin method, but in this region the white matter was considerably implicated. In the lumbar region the light color of the anterior horns by the Weigert hematoxylin method was in striking contrast to the deep staining of the posterior horns. The white matter was only slightly affected. Masses of fatty granular cells were found in the faintly staining areas, and perivascular cellular infiltration also was present. The blood-vessels of the anterior horns were congested. The anterior and posterior spinal roots stained well. The nerve cells of the anterior horns in the cervical and lumbar regions presented more or less chromatolysis, displacement of the nuclei, and loss of dendritic processes, but the alteration of the nerve cells was not intense. The degenerative changes of the anterior horns throughout the cord, causing faintly staining areas by the Weigert hematoxylin method were remarkable, and justify the classification of this second case under the head of anterior poliomyelitis. The contrast between the light anterior horns and the dark posterior horns in stained sections was so intense that it was perceptible to the naked eye in the lumbar region. Strictly speaking, the case was one of diffuse myelitis, but, with the exception of a part of the thoracic cord, the myelitis was almost confined to the anterior horns, and was an anterior poliomyelitis, and probably of vascular origin.

6. *Evolution of Consciousness*.—The author presents an interesting summary, with diagram, of present ideas concerning the development of the conscious processes. The paper is condensed and should be consulted in the original.

7. *Lesion of the Brachium Pontis.*—The author here gives the history of an accidental bullet wound which entered the chin and lodged at the right side of the foramen magnum. In four or five days there was paralysis of the right side of the body, face, arm and leg, loss of the faculty of speech and slight loss of hearing on the right side. The patient's right eye was turned up to the left, but he still retained vision on this side. Swallowing was performed with difficulty, and the sense of taste was disturbed from the start. This occurred in 1899; in 1902 the patient was seen by the author, and a summary of his condition is given. (1) A complete lesion of the trigeminal nerve on the right side, from its very completeness evidently between the semilunar ganglion and the entrance of the root into the pons varolii, *i.e.*, during its course inwards along the middle cerebellar peduncle; (2) a complete lesion of the facial nerve, distal to its cells of origin in the medulla—a lower motor neurone lesion, from its completeness and the subsequent atrophy of the muscles; (3) possibly a lesion of the eighth nerve. Dr. L. F. Page examined the ear and reported it normal; and yet there was some deafness at first, which gradually increased until at present air conduction is entirely destroyed. If any portion of the auditory nerve was injured it must have been the anterior and mesial or vestibular branch, but as this has nothing to do with the sense of sound, one must look for some deeper lesion in explanation of the absent function of air conduction on the right side. This would be possible in a lesion of the superior olive, the lateral lemniscus, or the trapezoid body. Only the first of these would conform in position to the course of the bullet, taking its entrance to the pons and its present position as shown by X-ray picture as the points through which to draw a little to indicate its line of travel. The lateral lemniscus would then lie too far cerebral-wards, and the trapezoid body too near the median line to be affected. According to Babinski, if the cochlea be destroyed in a newborn animal there result atrophy and disappearance of the cells and white matter of the nucleus olivaris superior of the same side; and von Bechterew has described a connection between the superior olivary nucleus and the nucleus of the sixth nerve. This latter connection might possibly explain the muscular derangement of the eyeball in the present case in which the ball was turned upwards and inwards. The only place where such a complete lesion of these two nerves could occur with the present source of injury, *i.e.*, a revolver bullet approximately three-eighths of an inch in diameter, must be at a point where they come nearly enough together to be severed by the bullet in its passage. Only one such place exists, and that is over the brachium pontis, as it sinks into the cerebellar substance. One must remember here that the lesion was practically confined to the fifth and seventh nerves. The fifth nerve as it passes inwards and backwards from the Gasserian ganglion to enter the pons lies closely enough to the seventh nerve, as it passes upwards and outwards to enter the internal meatus, to be divided by such a missile. The possibility of fractured bone causing part of the injury is negated by the confinement of the lesion remaining.

8. *Cerebral Embolus During an Epileptic Fit.*—Dr. Walter Broadbent reports a case of a woman, aged 44, who had been subject to epileptic fits for seven years. Two days before the present illness she had had five fits. The present fit was different from the usual ones in that there was irregular jerking of the right arm and leg and the mouth was drawn over to the right. She remained unconscious for five hours and died on the ninth day. *Post mortem.*—Small embolus was found in the right middle cerebral artery just beyond the point of origin. The cortex along the course of the vessel was softened, and on section the right corpus striatum and all the surrounding parts, including the portion of the frontal lobe, were in a state of extreme softening.

JELLIFFE.



## REVUE NEUROLOGIQUE

(Vol. 12, 1904, No. 1, January 15.)

1. The Nature and Pathogenesis of the Spinal Root Lesions Accompanying Brain Tumors. J. NAGEOTTE.
2. Pedunculo-Pontine Tubercles. E. LENOBLE and E. AUBINEAU.
3. Paranoid Epilepsy. MARCO-LÉVI BIANCHINI.

1. *Spinal Root Lesion in Brain Tumors.*—The author describes in three cases of brain tumor, the changes observed in the spinal cord and nerve roots by the Marchi method. The well-known degenerations in the posterior roots are described in detail. In addition interstitial inflammatory changes (periarthritis and endoneuritis) were noted in the extra-medullary portion of the spinal nerve roots below the union of the anterior and posterior roots and above the spinal ganglion. The inflamed area was evident to the naked eye as a small tumefaction. Serial microscopical study of the roots demonstrated subacute and chronic inflammatory changes in the interstitial and vascular elements at the site of tumefaction, with evidences of myelin disorganization. The axis cylinders except for a somewhat swollen and tortuous appearance, are well preserved. That portion of the root intervening between the inflamed nodulation and the point of entrance to the cord presented a normal appearance. As soon as the root perforates the pia mater disorganization of the myelin sheaths becomes evident. The degeneration increases in extent as the cord is ascended. The tract of Lissauer is free as is also the posterior commissure. The reflex collaterals are delicately indicated by myelin droplets, and slight degeneration was observed in Schultze's comma and the septo-marginal tract. The intra-medullary portion of the anterior roots were degenerated (retrograde degeneration). The author assumes that the primary lesion in these cases, as in tabes, is located in the extra-medullary portion of the posterior roots, but, unlike tabes, is not a specific, but a simple inflammatory process. The immediate proximity of this portion of the root to the subarachnoid space exposes it to the toxic influences of the cerebrospinal fluid (syphilitic virus) or the toxin emanating from tumors. While the tabetic degenerations and those following tumor of the brain have some features in common, as the localization of the inflammatory focus in an extra-medullary root and the radicular character of the secondary degenerations, certain differences are apparent. Thus in tumor while the degenerations are radicular they are non-systemic in character, the inflammatory process is non-specific and the secondary changes in the nerve fibers is far less destructive in character. The explanation of the fact, that while the primary inflammatory lesion is situated below the junction of the anterior and posterior roots, the secondary degenerative changes only begin after the roots have traversed the pia, is more or less hypothetical in nature.

2. *Pedunculo-Pontine Tubercles.*—Description of the symptoms produced by tubercles, two situated in the pons Varolii of a child aged ten months. Complete paralysis of the left third nerve, right-sided ptosis and paralysis of an inferior portion of the right facial, were referable to a tubercle in the dorsal region of the pedunculo-pontine portion in the left side. Another tubercle in the central portion of the right side of the pons was indicated by a slight weakness of the left arm and leg, which would probably have escaped notice were it not for other paralyses. The authors emphasize this paucity of symptoms and remark that solitary tubercles in young children may run an entirely latent course. A large cavity (tuberculous) in the right lung also escaped notice and the danger of this in young children when the diseased focus is surrounded by healthy lung tissue is emphasized.

3. *Paranoid Epilepsy.*—Under the above heading the author describes

a peculiar case of the extreme mental confusion or delirium of epilepsy. Peculiar in that the "*grand mal intellectuelle*" had replaced the typical motor manifestations some years before, and the delirium showed distinct evidences of organization. Because of the unusual indications of systematization, of a more or less persecutory nature, this form is described as a *delire persecutif paranoïde*." These mental outbursts occurred five or six times a year, lasting two or three weeks.

(Vol. 12, 1904, No. 2, Jan. 30.)

1. Acute Optic Neuromyelitis. E. BRISSAUD and BRECQ.
2. Objective Disturbances of Sensibility in Acroparesthesia and Their Radicular Distribution. J. DEJERINE and EGGER.
3. On the Transformation of the Law of the Cutaneous Reflexes in Affections of the Pyramidal Tract. J. BABINSKI.

1. *Acute Optic Neuromyelitis*.—As acute optic neuromyelitis, a designation proposed by Devic, is described a symptom-complex characterized by an acute diffuse or disseminated myelitis, associated with optic neuritis and blindness. The author records an interesting case with autopsy, terminating fatally in thirteen days. Acute onset with headaches, weakness and sensory disturbances in the lower extremities in a boy of sixteen. Rapid progression ending in complete quadriplegia and anesthesia to the lower margin of the ribs. Preservation of the skin and tendon reflexes. Speech scanning and nasal. External strabismus with vertical nystagmus of the left eye. Pupils dilated and without reaction in the right eye. Incontinence of urine. Obstinate constipation. Lumbar puncture: numerous red cells, also lymphocytes and some polynuclears. Visual symptoms (amblyopia) with optic neuritis were apparent on the fourth day. Autopsy: Acute inflammatory changes were found in the cervical and dorsal regions of the cord and the brain stem, consisting essentially of cell accumulations in the perivascular spaces. These cells were largely of a round or oval contour (epithelioid) and contained myelin products and fat droplets in large quantities. Extensive degeneration of the neural structures with acute interstitial changes were noted in the optic nerves. Examination of the spinal nerve roots and peripheral nerves was negative.

2. *Disturbances in Acroparesthesia*.—Dejerine and Egger, following the suggestion of Pick, who pointed out the occasional segmental (radicular) distribution of the subjective sensory disturbances of the acroparesthesiæ, have demonstrated slight objective sensory symptoms having a similar distribution. Four cases are described in which a hyperesthesia of variable intensity was distinctly demarcated, corresponding to the known radicular or segmental distribution of the upper extremities. The apparent blunting of the deep sensibility is probably due to the vascular changes and consequent anemia of the parts, which also explains in part the subjective disturbance of numbness. The symptoms of the acroparesthesia on the basis of their studies, were attributed to irritation of the posterior roots in their intramedullary course. As the vasoconstrictors emerge largely by way of the anterior roots, their implication is probably one of reflex origin. A certain analogy existing between these cases and tabes is indicated.

3. *Transformation of the Law of Cutaneous Reflexes*.—It is generally admitted that a certain antagonism or variance exists between the skin and tendon reflexes in lesions of the pyramidal tracts; that while the tendon reflexes are exaggerated the skin reflexes are usually diminished or absent. Some observers attaching considerable diagnostic importance to the abolition of the skin reflexes under such circumstances. It is to be remarked that this abolition of the skin reflexes in pyramidal tract lesions refers only to the normal or physiological skin reflex, i.e., a definite muscular response elicitable on stimulation of a (*definite*) surface

area. On the other hand, the exclusive reflex activity of the lower extremities to peripheral stimuli in cases of paraplegia is a common observation; transcending the normal in extent and degree. Cases are presented by the writer illustrating some of the peculiarities and derangements of the cutaneous reflex action in spastic cases. The concluding remarks are as follows: In affections of the pyramidal tracts, the diminution or abolition of the abdominal and cremasteric reflexes are in contrast, it is true, with the exaggeration of the tendon reflexes. If the cutaneous reflexes are considered from a general standpoint and an attempt is made to express the essential nature of the disturbance which they suffer, it would not be just to say that they were abolished in contrast to, nor correct that they are exaggerated as are the tendon reflexes in spastic cases. What could be said is that the law governing the cutaneous reflexes suffers a transformation.

J. RAMSAY HUNT (New York).

#### MISCELLANY

A CASE OF ACUTE DISSEMINATED ENCEPHALOMYELITIS. Joseph L. Miller (Journal of the American Medical Association, Oct. 24, 1903).

Acute disseminated encephalomyelitis manifests itself in one of two clinical types, acute ataxia or acute paraplegia.

The author reports a case of a man aged 47, alcoholic and syphilitic, who had sustained a severe traumatism to the leg. During an attack of pneumonia he suddenly developed temporary aphasia. Later he suddenly developed a staggering gait, slow, monotonous speech; he suffered remissions in his disturbance of gait; a slight tremor of the hands when at rest or in motion; horizontal nystagmus, and no optic atrophy.

This is a clinical picture of multiple sclerosis, but differs from it by its acute onset. Pathologists agree that the anatomical findings may be identical with multiple sclerosis. Many writers consider the cases of this type multiple sclerosis with acute onset.

W. B. NOYES.

AN EARLY SIGN OF GENERAL PARALYSIS.

E. Toulouse and Cl. Vurpas, at the 13th congress of alienists, held at Brussels, have called the attention to a new sign of paresis, by modifying the pupillary reflex by applying eserine and atropine to the eye. In the latent period of the disease the reaction to these drugs does not appear at all; in the time of reaction or later period of paresis a few drops of either drug will produce a maximum effect in a short time.

W. B. NOYES.

INHIBITION IN THE MEDUSÆ. L. Sanzo (Arch. Ital. de Biologie, Oct. 10, 1903).

As a physiological process, inhibition is manifested not only in the highly complex organisms, but also in those at the lower end of the scale of animal life. L. Sanzo, stimulated by the observations of Romanes and Krukenberg, namely, that the rhythmic contractions of the jelly-fish are analogous to those of the frog's heart, decided to investigate the problem whether inhibition plays any rôle in the vital manifestations of this organism. He finds that the contractions are truly rhythmical. In treating the animal to the action of pilocarpine, nicotine or muscarine, which stops the action of the heart in the higher animals, the author discovers that the contractions after an increase in energy and frequency, soon diminish and then stop in diastole. The author then inquires whether this is due to an exaggeration of the normal process of inhibition or is to be attributed to the toxicity of the substance employed. He finds that the excitability of the muscular fibers and the conductivity of the nerves are still preserved, that the action is evidently limited to the ganglia. To solve the question whether the drug stimulates normal process of inhibition in the latter or paralyzes



them, the author resorted to the following: In injecting atropine into a medusa whose contractions have already ceased as the result of the action of pilocarpine, the author finds that the movements begin again. The interpretation of these facts is that pilocarpine, nicotine and muscarine, in small doses, excite and exaggerate a normal process of inhibition exercised by the ganglia, and atropine, in paralyzing the ganglia or the peripheral extremities of the inhibitory nerves, counteracts this process. In whatever manner it is brought about, the above show that there is undoubtedly an inhibitory process in the normal rhythmical movements of the medusa, which is all the more interesting since this animal is one of the first in the zoological scale to show a nervous apparatus, the process of inhibition thus appearing synchronously with the phylogenetic origin of the muscular and nervous tissues.

JELLIFFE.

THE DIFFERENTIAL DIAGNOSIS BETWEEN FRIEDREICH'S DISEASE AND INSULAR SCLEROSIS. F. Savery Pearce (N. Y. Med. Journ., Oct. 24, 1903).

Friedreich's disease, a non-system disease, consisting of gliosis principally involving the posterior columns, presents incoordination in all four extremities, a jerky or reeling gait, loss of knee jerks, nystagmus, disturbance of articulation (stumbling or blurred speech), and a progressive tendency to helplessness. It is distinguished from Marie's form by occurring before, instead of after, puberty; the choreiform movements of the head, arm and trunk are very pronounced in Marie's form. Optic atrophy is exceptional in Friedreich's, common in Marie's form. Tendon reflexes are diminished in the former, increased in the latter, with clonus; club foot and scoliosis are common in Friedreich's, exceptional in Marie's form. Insular sclerosis is a disease caused by sclerotic plaques scattered through the central nervous system, and as a rule occurs between the years twenty and thirty, though sometimes congenital and hereditary.

The gait may be spastic, cerebello-spastic, or cerebellar, in the latter there being rigidity with diminished or normal reflexes; but nystagmus, staccato speech, and intention tremor are always present. Sometimes the Marie type of Friedreich's disease may be confused with insular sclerosis, but the former may show an alcoholic history, has few remissions, no intention tremor of the tongue or hand. In insular sclerosis the scanning speech and distinct intention tremor of the hand is present. The disease is an evolutionary defect.

W. B. NOYES.

A SEPARATE CENTER FOR WRITING. Hermon C. Gordinier (Am. Journ. Med. Sciences, Sept., 1903).

Autopsy in a case operated on for supposed cerebral neoplasm showed a glioma occupying the foot of the second left frontal convolution, being distinctively separated from the arm area by the precentral sulcus. The growth was elevated about 0.5 c.m. above the surrounding cortex, was slightly irregular in outline, of a distinctly firm consistency and oval in shape. Its longest cortical diameter was 2 c.m. The pia was intimately adherent to it. The tumor was seen to extend downward and inward in the centrum semiovale as far as the roof of the anterior cornu of the lateral ventricle, and forward to near the apex of the frontal lobe, involving almost exclusively the white matter of the second frontal gyrus. The rest of the brain was normal.

The symptoms that had been caused by this were failure of strength and occasional attacks of vertigo during six months preceding her death; headaches of increasing severity, gradual failure of sight, due to optic neuritis; paresis of the right external rectus muscle. No aphasia, either motor or sensory, but a total inability to write was present, although understanding perfectly written language. There was no paralysis of the

muscles of the hand, forearm or arm, and the fine and coarse movements of the hands could be executed in a perfect manner.

A tendency to ataxia, staggering towards the right side, developed.

The writer claims that motor aphasia and agraphia do not necessarily exist together, and, secondly, if both exist the lesion probably involves both the second and third left frontal convolutions in the right-handed. Third, motor agraphia depends on a lesion of the second left frontal gyrus.

CAMP (Philadelphia).

**BRAIN SURGERY IN EPILEPSY AND CONGENITAL MENTAL DEFECT.** William P. Spratling (N. Y. Med. Journ., Sept. 19, 1903).

Thirty-three cases of epilepsy of the head have been operated on at the Craig Colony, twenty of which were due to trauma of the head. The average duration of the epilepsy before the operation was approximately five years and a half. The results after one or more years showed in two cases no improvement of the disease, either temporary or permanent. In eight the attacks were lessened in frequency and severity, the operation being a part of the treatment only. In three the disease was much worse after the operation. Improvement, therefore, occurred in only 25 per cent. of the cases, and these were subject to the regular routine of medical treatment.

The author reports 194 cases from literature operated on for idiocy. Of 111 of these 19, or 17 per cent., died in consequence of the operation or soon after; 25, or 22.5 per cent., were operated on with no result; 10, or 9 per cent., were operated on with slight result; 24, or 21.5 per cent., were improved; 30, or 27 per cent., improved without reports as to their character.

In 83 more permanent cases, 24 per cent. died, 65 per cent. were unimproved, 10½ per cent. were improved, 74 out of 83 received no benefit. The writer holds that if the epilepsy is unessential, reflex, rudimentary in type, or of short duration, and the operation removes the cause early enough, we may expect the convulsions to cease in many cases. Of congenital mental defect, not a single case is reported where a normal mental status was established through surgical intervention.

W. B. NOYES.

**GROWTH AND HISTOGENESIS OF NERVES.** Charles Russell Bardeen (Amer. Journ. of Anatomy, March 28, 1903).

In the development of the peripheral nervous system it is convenient to recognize several stages, although it is difficult to draw a sharp line of demarcation between them. The first stage is that of the differentiation of the motor nuclei and sensory ganglia; the second includes the period of outgrowth from the region of the central nervous system to various peripheral anlagen; the third the development of the branches from the primary nerves, to the various parts differentiated from these anlagen; and the fourth, the development of functional unity between the nerve fibers and the structures to which they are distributed. During the second period the proximal nerve-plexuses are formed, during the third the coarser peripheral plexuses, and during the fourth the finer terminal plexuses.

The axis-cylinder fibrils of the nerve grow out by continuous extension from central cells. They divide and branch extensively as they proceed from the region of the central nervous system outwards. They leave the central nervous system and spinal ganglia, in naked bundles, but soon become intimately related with sheath-cells which accompany them closely throughout the period of growth. At the growing tip of a nerve it is difficult to decide whether the axis-cylinder fibrils or the sheath cells proceed. Posterior to this the nerve gradually becomes dis-

tended with fibrils by ingrowth from behind, or by multiplication due to division.

In an early embryonic nerve of moderate size, one finds many hundred fibrils inclosed by a sheath of flattened cells, but with no cells among them. There is no segmentation in the axis-cylinder fibrils corresponding to the cells of the sheath of Schwann.

Union of nerve and muscle fibers takes place before the formation of the sarcolemma. The sheaths of the nerves serve to maintain the stroma in which the axis-cylinder fibrils grow. At first large numbers of fibrils are ensheathed within the main trunks of the nerves, but by proliferation of the sheath cells smaller and smaller bundles are inclosed until finally but a small group of fibrils is inclosed within each sheath of Schwann. Myelination is due to influences exerted by the axis-cylinder fibrils on the surrounding stroma.

**BIRTH PALSIES.** H. Bochroch (N. Y. Med. Journ., Sept. 19, 1903).

Lesions of the brain such as produce hemiplegias, microcephaly, porencephaly and hydrocephalies are produced by prolonged pressure at birth—frequently from delayed application of forceps, rather than use or abuse of forceps. They occur most frequently among first-born children.

It is probable that the lesion which causes this serious disease is originally one of hemorrhage due to laceration of the veins of the pia mater, just as they enter the longitudinal sinus, or hemorrhage from other sources. Extensive extravasation of blood occurs, usually widely distributed over the convexity of the hemispheres. In some of these cases the writer believes an opening might be made in the side of the head in the parietal region, and the effused blood washed out.

After months and years have elapsed the brain tissue becomes sclerosed; cysts and porencephaly become established, and neither medicine nor surgery can help. Erb's paralysis, or brachial palsy, which results from excessive traction or pressure upon the shoulder, involves as a rule the following muscles: the deltoid, the infraspinatus, the supraspinatus, the teres minor, the biceps, the brachialis anticus and the supinator.

In some cases the fingers and hand are involved. It is often termed the Erb-Duchenne form of palsy, and is characterized by the arm falling motionless to the side of the body; the arm turning inward and extended; flexion of the forearm and raising of the arm impossible, while movements of the hand and fingers are retained.

NOYES.

**A CONTRIBUTION TO THE SURGERY OF THE BRAIN.** William Hudson (Am. Journ. of Med. Sciences, Sept., 1903).

The localization of cerebellar tumors is difficult, and tumors have been found at autopsy which have presented no symptoms in life, or symptoms referable to the other lobe, or symptoms due to hydrocephalus internus. In two cases reported by the writer, one showed positive localized tenderness on deep pressure over the tumor; paralysis of the external rectus muscle of the eye on the side of the tumor; paresis of the seventh nerve; pain in the back of the neck, on the same side. There was weakness on the left side and rotation in walking.

In case two there was positive localized tenderness on deep pressure, paralysis of the external rectus and seventh nerve on the same side as the tumor, but no change from the normal in either side of the patient in sensation, motion, or strength. There was absolute deafness on the tumor side.

There was also a decided rotation of the body from left to right. In both cases the knee jerks were totally absent until after the operation, when they became more lively than normal. This condition is variable in



reported cases, due probably to intracranial pressure, or upon degeneration of the posterior columns of the spinal cord. Deep tenderness or localized pain is of the highest value for localization, and is of meningeal origin, due to a primary or secondary affection of the dura mater, which may become sensitive to pressure from a sub-cortical growth some distance away. It is believed that irritative lesions cause a rotation away from the side of the tumor; and destructive lesions toward the side of the tumor.

WM. B. NOYES.

DIE PROGRESSIVE MYOKLONUS-EPILEPSIE (UNVERRICHT'S MYOKLONIE). Von Dr. Herman Lundborg, privatdozent der psychiatrie und neurologie in Upsala (Herausgegeben mit unterstützung aus Wilhelm Ekman's Universitätsfonds).

Lundborg has adopted Clark and Prout's designation, "Myoclonus-Epilepsy," for this combination disease, but with the felicitous prefix of progressive to indicate its continuous degenerative tendency. This work is the third or fourth monograph the author has given us upon this subject. It embraces a careful digest of all research upon the disease to the present date. The divers opinions of various authors as to the nature and pathology of the affection are critically reviewed. The different types of cases and their stages in the intermittent and progressive forms of the disease are discussed and illustrated. While he lays stress upon the possible primary departure of affection in the cortex as shown by others, the importance of cell changes in the cord and in the muscles themselves are thought to be of great importance. The probably allied pathology of a number of convulsive diseases presenting somewhat similar clinical phases are discussed, such as Huntington's chorea, hystero-epilepsy, electric-chorea (Henoch-Bergerons), paralysis-agitans, myotonia, fibrillary chorea (Moran), myokymia (Schultze), Koschewniskow's epilepsy. An excellent and exhaustive bibliography of all forms of myoclonus is appended.

L. PIERCE CLARK.

## News and Notes

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DEATH OF PROFESSOR F. JOLLY.—Dr. Jolly died January 4 in the fifty-ninth year of his age of aortic aneurism. He was made privat-docent in 1871 in Wurzburg; was then made director of the psychiatric clinic at Strassburg and in 1890 followed Westphal at Berlin.

GERMAN APPOINTMENTS.—Professor Bonhoeffer has been called to Heidelberg to take Professor Kraepelin's chair. Dr. Albert Knapp, of Göttingen, has been appointed to Professor Bonhoeffer's position at Königsberg. Professor A. Hoche has been appointed professor to take the chair of psychiatry at Halle, made vacant by the appointment of Professor Ziehen. Professor Th. Ziehen becomes professor at Berlin in Jolly's place.

EUROPEAN APPOINTMENTS.—Dr. Lapinski, privat-docent, has become instructor in psychiatry at Kiew.

Prof. Dr. Popow has been made instructor in neurology and psychiatry at Tomsk.

Prof. Dr. Tanzi has been appointed instructor in neurology and psychiatry at Florence.

Prof. Dr. Karl Heilbronner has been appointed instructor at the University of Utrecht.

MONTREAL INSANE HOSPITAL.—The annual meeting of directors of the Montreal Protestant Hospital for the Insane was held in February. The Superintendent's report showed the number of admissions during the past year to have been 152; treated, 581; cured, 57; improved, 23; deaths, 44; percentage of recoveries, 37.5. The gross receipts were \$96,695 and the expenditures \$101,437, leaving a deficit of \$4,742.

BRITAIN'S INSANITY STATISTICS.—The *British Medical Journal* draws some very remarkable and interesting conclusions from the report of the Inspector of Hospitals for the Empire. A curious exactness of relationship in the number of cases of insanity exists between Queensland, Victoria, and New South Wales on the one hand, and England and Wales on the other. At the end of 1902 the first named showed a percentage of 3.52 per thousand, and the latter 3.42. It is noticeable, also, that the figures from England and Wales cover all cases, both public and private, a degree to which we have not been able to attain in American statistics for obvious reasons. To the British mind, according to the *Journal*, this carries with it the comforting thought that perhaps, after all, there is no real increase in the number of lunatics in the mother country, and that the much discussed deterioration of the British lower classes is, after all, a mistake. Another fact is that the cost of maintenance of insane in all places was about equal. The hope is expressed that "from figures thus furnished the lunacy authorities of the colonies may throw some light on the question as to what division of the British race is most prone to mental disorders."

HONOR FOR PROFESSOR MARK BALDWIN.—It is reported on excellent authority that Prof. J. Mark Baldwin's "Story of the Mind" is being translated into Spanish by Julian Basteiro, of the Instituto de Toledo. Professor Baldwin recently resigned his chair at Princeton University to

take up more advanced experimental work as head of the department of Psychology at Johns Hopkins.

MASSACHUSETTS HOSPITALS OVERCROWDED.—The annual report of the Massachusetts State Board of Insanity shows that the hospitals for the insane of that commonwealth are filled to the utmost. There is now a total of 8,610 patients under care in these institutions, showing an increase of 339 for the twelvemonth; 1,753 are obliged to sleep on beds in the corridors or in day rooms.

REPORT OF NEW YORK STATE CHARITIES ASSOCIATION.—The State Charities Aid Association, in a report to the State Commission in Lunacy, reports that on October 1st, 1903, there were 2,166 patients in excess of the capacity of State hospitals. The building operations now under way will meet present demands, but no provision is made for the future, and in case of further increase, conditions will soon be as bad as formerly.

LABORATORY FOR THE STUDY OF DEFECTIVES.—A bill has been introduced at Albany, by Mr. Barnes, advising the establishment of a laboratory for the study of the "abnormal classes." The plan is to provide means for the collection of sociological and pathological data concerning criminals, paupers, and the mentally deficient. It is recommended that a Director be appointed, at a salary of \$3,000, to make a free and open report each year to the Attorney General on the work taken up, results achieved, etc.; and also an appropriation of \$5,000 for the equipment of the laboratory and expenses consequent upon a successful carrying out of the experiments.

CANADIAN ASYLUM'S NEW SUPERINTENDENT.—Dr. T. J. Maher, Assistant Superintendent of the Institute for the Feeble Minded at Orilla, Ontario, has been made medical superintendent of the Asylum for the Insane at Brockville, Ontario, in place of the late Dr. Murphy.

DOCTOR PETERSON RESIGNS.—Doctor Frederick Peterson, to whom the people of this State owe so much for his very efficient work in caring for the epileptics and insane, has resigned his position as President of the State Commission in Lunacy. The reason given is that the work interferes too much with private practice to warrant its continuance as previously carried on.

APPOINTMENT OF DR. PILGRIM.—Dr. Maurice Pilgrim has been appointed State Commissioner in New York State to fill the vacancy made by the resignation of Dr. Peterson. Dr. Pilgrim retains his superintendency as well. The extra compensation is \$1200 per year.

AMERICAN MEDICAL PSYCHOLOGICAL ASSOCIATION.—The next annual meeting of this body will be held in St. Louis on May 30th to June 3d of this year. President A. E. Macdonald, of New York, will preside, and it is planned to hold morning sessions only, so that the visitors may see as much of the Exposition as possible. Hotel accommodations are already provided, and it is likely that special railroad rates can be secured. The titles of a few papers, taken at random, will be: *Amnesia Clinically and Diagnostically Considered*, by Charles H. Hughes, M.D., of St. Louis; *A Plea for the Voluntary Admission of Certain Types of Insanity in Institutions for the Insane*, by James Russell, M.D., of Ontario, Canada; and *German Psychiatric Clinics*, by E. N. Brush, M.D., of Maryland. Dr. William Mabon, of New York, and Dr. Charles K. Mills, of Philadelphia, will also prepare papers, the titles of which are as yet unannounced.



## Book Reviews

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*PATHOLOGIE MENTALE DES ROIS DE FRANCE, LOUIS XI ET SES ASCENDANTS. UNE VIE HUMAINE ÉTUDIÉE A TRAVERS SIX SIÈCLES D'HÉRÉDITÉ.* 852-1483. PAR AUGUSTE BRACHET, Libraire Hachette et Cie. Paris.

This volume of 900 pages is a second edition of a work of M. Brachet privately published in 1896 and accorded a medal of honor by the French Academy of Medicine. The present volume has appeared, edited by the wife of the author, as a fitting memorial of a splendid piece of historical work and one destined to be of much interest to all interested in the problems of heredity and their relation to mental disintegration and degeneration.

The author renders in his Introduction an explanation of the aims of historical pathology, as he terms it, and offers a plea for this embryonic science. He furthermore gives us a critical contribution on the methodology of this type of research, which is a model of its kind, setting a high and eminently scholarly standard of historical research that many modern superficial reconstructionists of medical history could follow to great advantage, even if it kept their paper unsullied and their ink bottle corked—a not undesirable result if some recent flagrant instances of ridiculously superficial medical biographies are recalled.

His Introduction also includes a series of critical comments tending to bring into a clearer light the criteria of earlier writers, notably in the years before the Renaissance, by which some estimate might be made of the clinical neurology and psychiatry of the day and its homologues of the present time.

We would like to reproduce the seven general principles that the author brings forward, after many examples of their application concerning the scientific method in the undertaking of work of this kind, but space does not permit. We can only feel that on p. 159 he presents an ideal of method of research which, if he has himself followed, and the evidence certainly seems to show that he practises his own doctrines, will make this volume a classic for all time.

The medical history of the rulers of France from 852 to 1498 is then taken up and the mental histories traced through the successive generations, side lines, etc.: Robert le Fort, Saint Louis, Phillippe III, Jean le Bon, Charles V, Charles VI, Louis I of Anjou, Louis II, Marie d'Anjou, Louis XI, constituting the main points of departure in this fascinating summary.

Fascinating is perhaps not the word that best expresses the point of view of the general reader, for the work is undeniably difficult to enjoy. Its style is distinctly bibliographical and scientific—thus, citations in old French, medieval French, Latin, and even impossible languages appear like hedges on almost every page, but by continuous practice one can learn to vault the obstacles and can get the continuous story.

Nine hundred pages naturally cannot be compressed in any book review summary. Suffice it that the work commends itself to the reviewer as a thoroughly conservative and conscientious piece of historical work and one of surpassing importance to all interested not only in the methods of this type of historical research, but also to the student of mental pathology as illustrated in the mental lives of the early French kings. Considering the size and value of the work, the price, 15 francs, is extremely reasonable.

JELLIFFE.

AUSGEWÄHLTE WERKE. VON P. J. MÖBIUS. Band I. J. J. ROUSSEAU. Johann Ambrosius Barth, Leipzig.

We open this work of Möbius' with some interest, remembering an earlier edition of the same, and our attention is riveted on the introduction, in which the life history of the first edition is sketched with a serio-humorous pen. Möbius tells us that his work on matters of this kind is his relaxation, his play time, and he writes because it amuses him, and if the less serious of his literary fruits should be financially productive, he is glad of it, but if not, then he offers his publishers condolences and were he French would probably shrug his shoulders.

In 1889 he published his first work on Rousseau. It was well received. Möbius quotes the good words of many of the reviewers. They offered content to his soul. But he did not hear from his publishers for a long time—a very long time—and on investigation found that only about 324 copies had been sold. By 1896 the deficit on the books of his publishers was 50 marks. In 1889, 394 marks were received, in 1890, 262 marks, in the next six years 40 marks 50 pfg., in all 899 marks. The final deficit was 17 marks 80 pfg. Surely, our envy does not include the German publisher, or author, but, as Möbius puts it: "It cost him a year's work, and at least 100 marks in outlay, but he had his fun, but as for the publisher he had nothing but annoyance and vexation."

At all events, Möbius tries it again, giving us a reëdited, enlarged and rewritten volume dealing with the pathological aspects of Rousseau's mental life.

Möbius is not a faddist. We do not find him running after any single cause theory to account for Rousseau's troubles. An uncut foreskin, a weak eye muscle, a slightly prolapsed stomach, or hyperchlorhydria do not seem to enter into his summary of causes, notwithstanding the many advocates of these etiological factors as causative of all woe. He sketches in a clear and an attractive manner the times and the surroundings and their effects on Rousseau's mental development.

A study of this type seems to us to be worth while. It is a conscientious effort to paint a picture of a great man, by the palpable colors that he has left behind in his writings. Errors are bound to creep in, but the method of handling is such that it commends itself to all who try to think logically and to reach conclusions by processes as rational as the individual make up will permit.

That Rousseau became mentally unbalanced, there is little doubt. A certain amount of interest is centered in the study of the type of mental malady that he developed. This, according to Möbius, was a paranoia which slowly evolved over a period of many years.

Like many others of the author's works, this is suggestive and interesting. We hope for it a much larger sale than was accorded the earlier work, of 1889.

THAYER.

PSYCHOPATHOLOGIE LEGALE GÉNÉRALE. COURS FAIT À L'UNIVERSITÉ DE SAINT-PÉTERSBOURG. PAR PROF. PAUL KOVALEVSKY, M.D. Vigot Frères, Paris.

The students of the University of St. Petersburg are fortunate in being able to hear this course of lectures of Dr. Kovalevsky, if the printed volume that covers his course offers any criterion.

In a previous volume the author considered the subject of criminal psychology, in which a complete exposition of the multiple causation of crime, the general and special symptomatology was made. The present series discusses the subject of legal psychopathology.

Under this head the author includes all that category of mental deviations from the average by reason of which individuals come in conflict

with the established social orders, and by reason of such strife become the subject of judicial inquiry.

In the elaboration of his scheme the author has first considered the normal mental life—so-called—under the head of psychology—his second inquiry turns on the pathological deviations of human mental activities, which come in contact with general judicial procedure, and, thirdly, he discusses those special or particular pathological deviations that are of most interest to the legal representatives of society.

The work, a small one, is one of much interest, and is entitled to serious consideration by all who are at all interested in medico-legal questions. There are some very excellent chapters on the traumatic psychoses, the puerperal state and its mental deviations, mental troubles following abortion, simulation, and remissions and intermissions in criminal psychopathology.

POPE.



THE  
Journal  
OF  
Nervous and Mental Disease

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Original Articles.

A CLINICAL AND PATHOLOGICAL CONTRIBUTION TO THE  
STUDY OF THE CENTRAL LOCALIZATION  
OF THE SENSORY TRACT.<sup>1</sup>

BY HERMAN H. HOPPE, A.M., M.D., OF CINCINNATI, O.

The object of the present report is to throw some light upon the subject of cerebral, especially cortical localization of sensory functions.

Much good work has been done physiologically and experimentally in the last few years, especially by Dejerine, Long, Probst, von Monakow and others on the functions of the thalamus opticus, and some ideas concerning the course of the sensory tract from the thalamus to the cortex will in a measure at least have to undergo a modification.

What we will specially consider in this paper are (a) lesions of the thalamus, (b) lesions of the area supplied by the middle cerebral artery, (c) cortical and subcortical tumors of the Rolandic region, to see what light they can throw on the course and cortical termination of the sensory fibers.

Physiologically speaking, the subject of our study is the thalamus opticus and the thalamo-cortical neurone, and the cortico-thalamic neurone. It has been established as an anatomical fact, by the researches of Dejerine, Long, Probst, von Monakow, Kölliker, Bechterew, Flechsig, Schaefer, and Spiller that:—

1.—The thalamus opticus is connected by fibers with a large

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<sup>1</sup>Read at the 14th International Congress of Medicine, Madrid, April 23-30, 1903. Section of Neurology.

section of the cortex, and reversely that the cortex is connected with the thalamus opticus. Thus we have thalamo-cortical and cortico-thalamic neurones.

2.—That all the centripetal sensory tracts end in the thalamus. No centripetal sensory tract (Probst) ever passes through the thalamus to proceed to the cortex.

3.—That the thalamo-cortical bundles pass through all parts of the posterior limb of the internal capsule, on their way to the cortex. They are not massed in one bundle, like the pyramidal tract, but in a fan-shaped way they pass along with or through the fibers of the posterior limb of the capsule. (Dejerine and Long.)

4.—The thalamo-cortical neurones spreading out in a fan-shaped way pass to the cortex of the frontal, parietal, occipital and temporal lobes.

The fibers from the lateral and ventral nuclei, especially, pass to the central convolutions around the fissure of Rolando, the gyrus fornicatus and the posterior portions of the frontal lobes. These observations of Probst on lower animals have been verified by Flechsig in the fetal human brain. The physiological results obtained are far from being as exact as the anatomical and histological. The question involved is; what relation does the thalamo-cortical neurone bear to the conduction and perception of sensory impressions, coming from skin, muscles and ligaments.

Three anatomical points are involved in these neurones (a) the thalamus opticus, (b) the cortex, (c) the fibers connecting the thalamus with the cortex.

Wundt found that the cutting in two of the thalamus opticus was followed by a change in movement of the animal in such a way that if it wished to go forward in a straight line, it invariably made a circular movement.

Nothnagel in his experiments of producing small areas of destruction in the thalamus was unable to find that any disturbance of sensation followed such lesions. He also produced bilateral lesions of the thalamus, and the animal showed no effects whatever from the lesions—all movements were normal; no paralysis, no disturbance of skin sensation.

Ferrier found that destruction of the thalamus was followed by sensory disturbance of the opposite side of the body. He at-

tributes only sensory functions to the thalamus, and holds that it is devoid entirely of motor functions.

Meynert says that the thalamus is an organ for complex or combined movements, which are executed unconsciously as reflex movements, resulting from the sensory impressions brought to the thalamus from the sensory end organs. These thalamus perceptions are brought to the cortex by way of the thalamo-cortical fibers and are treasured there as memory pictures, and become the means or basis of future voluntary movements. (Nothnagel agrees to this.) The only positive and constant sensory result of an injury to the thalamus, as proven by von Monakow, is the hemianopsia, and this occurs as a result of a destruction of the pulvinar.

Edinger saw intense pain in the opposite extremities in a lesion of the thalamus. Others saw tremor.

Von Monakow thinks that a part of the reflex sensory arc is located in the thalamus. His idea is as follows:

The thalamus opticus is an important link in the central apparatus for the perception of impressions made upon the special senses and the skin, more especially on the latter. The fact that lesions resulting from destruction of the thalamus in whole or in part, are often only temporary or even absent altogether is due to two factors; first, that the senses including general sensations have a bilateral representation (?) and secondly, that the sensory impressions may follow vicarious routes, if those which they usually follow happen to be destroyed.

The great differences in results obtained by different experimentors, physiologically, may be due to a faulty technique, as Probst says, and the destruction of surrounding areas of the cerebrum. Probst has done much careful work on the functions of the thalamus. He divides the lesions into two groups; (A) passing, (B) permanent.

(A) Some clumsiness in the use of and placing of the opposite foreleg.

(B) (1) Circle movement. (2) Abnormal position and holding of head. (3) Hemianopsia.

Sensation on opposite side seemed at first diminished, afterward this condition was doubtful.

He lays special stress upon the fact that there is never any



permanent or absolute loss of sensation in dogs after thalamus injuries. There is no disturbance of reflexes, no loss of motor power, no galoppe movements such as were described by Fournie.

Probst also lays great stress upon the fact that previous experiments on animals were not followed by careful anatomical serial sections of the brain, and were therefore defective.

When we read, however, of the experiments of Nothnagel and of Ferrier, who are both capable experimentors and careful observers, and whose experiments lead to exactly opposite conclusions, so far as sensation is concerned, we are at a loss to account for the difference, except perhaps that the sensory tracts and centers are different for cats, dogs and monkeys.

The reason which Probst advances for the different results obtained may hold good for such instances where positive results were obtained, but would hardly hold good for negative results, at least as far as sensation is concerned, such as Nothnagel obtained.

The clinical investigations in man are also contradictory as far as the thalamus is concerned. Some writers attribute vision functions to the thalamus, others deny this flatly; some look upon the thalamus as a great sensory center, others deny this just as vehemently; some deduce motor paralysis from lesions of the thalamus, others deny that they occur.

Sancerothe and Foville, Lussana and Lemoique say that the thalamus presides over movements in the upper extremities. Cohn, Gintrac, Nothnagel, Bastian, hold that if the lesion is strictly limited to the thalamus, motor signs are not seen.

Todd, Carpenter, Broadbent, attribute sensory functions to the thalamus. This is denied by Vulpian and Lafforque. Long says that thalamic lesions produce permanent hemianesthesia. Chrichten Brown holds that lesions of the thalamus not only destroy sensations, but also reflex irritability for the opposite side of body. This is denied by Moeli and Lafforque.

Nothnagel says if, as a result of a focal lesion, we have a hemiplegia with involvement of the face, and if the face muscles cannot be moved by the will, but if emotionally both sides of the face are moved equally, we can say that the thalamus and the cortical connections are intact.

Disturbance of vision after lesions of the thalamus are indefinite.

Lesions of the posterior part of the thalamus are associated with rapid muscular atrophy of the hemiplegic side (Borgherini, Eisenlehr, Darkschewitsch, Quinke). Eisenlehr and Von Monakow deny that this always occurs.

Gross lesions of the thalamus may lead to mistakes because of the fact that other structures may be involved, as, for instance, in hemorrhages or tumor. The cases may present more signs and symptoms than those due solely to a disturbed function of the thalamus. On the other hand, if such cases do or do not present signs which prove the present theory of the functions of the thalamus, even though there be additional signs and symptoms caused by the destruction of tracts whose functions we know, they may prove of physiological value. Therefore, it is strange to relate that Probst himself should lay but little stress on a case in which sensory manifestations during life were negative, but the autopsy showed a destruction of both thalami by a tumor. The fact that this growth was very extensive is not of any importance compared to the fact that both thalami optici were destroyed without producing sensory manifestations. On the other hand, he publishes a case of hemorrhage limited to the thalamus and internal capsule in which during life there were hemiplegia, hemianopsia, hemianesthesia and nystagmus. He found in the autopsy a complete destruction of the thalamus with secondary degeneration of the thalamo-cortical fibers. He attributes the hemianesthesia, the nystagmus and the hemianopsia, together with the spastic condition of the muscles, to the destruction of the thalamus.

*Case I.*—B. W. F. male, aged 70 years. Admitted March 16, 1899, with history of feeling badly for two or three days, complained of occipital headache. On the night of March 16, while walking along the street, suddenly fell and became unconscious.

Examination: Complete motor paralysis of the right side of face, right arm, partial motor paralysis of the right leg.

Sensation: Right side, pain; shows that he feels pin-stick on side of face by facial expression, and also of left arm by movement of arm; heat and cold, negative.

Post-mortem twelve hours after death: Brain arteries show marked atheromatous and calcareous changes, left lateral ven-

tricle full of clotted blood, softening and degeneration of internal capsule, lenticular and caudate nuclei and optic thalamus softened, brain diffuent, calcareous arteries plainly seen in softened mass.

While the mental condition of this patient would not allow of a careful examination of sensation in all of its qualities, still it is positive that the perception of pain was present in the paralyzed extremities, with an extensive softening, which included the thalamus opticus.

*Case II.*—Tumor of brain, paralysis and aphasia. M. B. Female, aged thirty-two years, married. Admitted to City Hospital February 8, 1899, with history of blindness which began eight months ago, paralysis six months ago. On admission semi-comatose; very stupid; talks slowly when questioned; volunteers no statements; sleeps most of the time; hard to arouse when asleep; can give no account of herself.

Examination: Right arm completely paralyzed, right leg partially so; left arm seems very weak, left leg also weak.

Sensation: Pain diminished on right side; heat, cold and touch negative on account of mental condition. Died April 7, 1899.

Post-mortem twelve hours after death: Brain, calvarium removed; skull opened revealed a tumor mass involving left lobe, probably sarcomatous in character; very vascular; apparently began in the optic thalamus and involves ventricles and almost entire left lobe of brain; areas of softening in the lower surface of temporal lobe, both sides; degenerative changes in the optic chiasm.

In this case of extensive brain tumor of the left hemisphere, causing destruction of the thalamus, we find a diminution but not complete loss of pain sense.

Of all the numerous cases of tumor and softening of the thalamus on record, very few show a complete hemianesthesia, many a slight diminution of sensation, but by far the majority of all cases expressly say that sensation was normal. Up to five years ago, Oppenheim gives rather a complete digest of the sensory symptoms in published cases, and since this there have appeared the cases of Fraenkel, Bary, Beevor, Schule, Jacobson, Luxembourg, Bayerthal, Probst, Boost, and Courtney, in which complete destruction of the thalamus—and, in Jacobson's case, of both thalami—was followed by no disturbance of sensation.

Schaffer's case is of great interest in that it offers positive evidence of the function of the white connecting fibers between the thalamus opticus and the cortex. Gorden's observations con-



cerning sensory lesions in motor hemiplegia are clinical and have no pathological weight.

Schaffer holds that hemianesthesia is produced by lesions which destroy the connection between the thalamus and cortex of the Rolandic area. He holds that we can no longer maintain Charcot's theory of a separate sensory tract, but that the fibers of the latter are mingled with those of the pyramidal tract. He bases his opinions on a very careful autopsy made upon a case which during life presented a complete hemiplegia and hemianesthesia, a softened area was found occupying the head and tail of nucl. caudatus, anterior half and knee of internal capsule, cortex along the horizontal limb of fissure of Sylvius. There was no involvement of the thalamus, but the microscopic examination showed a degeneration of nucleus lateralis and of the thalamus. The posterior half of the internal capsule was free. He concludes that since the area destroyed by the softening is usually occupied by the pyramidal tract and that clinically the symptoms were complete hemianesthesia and hemiplegia, the sensory and motor tracts are identical.

It does not seem to me that this case proves any more than the existence of a cortico-thalamic neurone, the destruction of which may cause a permanent sensory paralysis. It does not prove that the fibers destroyed were all connected with the Rolandic area, many of the fibers destroyed may have been those which go to the parietal lobe.

Let me introduce at this point two cases of extensive subcortical tumors of the Rolandic area.

*Case III.*—Subcortical tumor below right arm center, occupying centrum semiovale and nucleus lentiformis. No disturbance of sensation, complete paralysis and no hemianesthesia. The paralysis in this case was due to the destruction of the internal capsule and corona radiata.

R. G., aged ten, colored, was admitted to Cincinnati Hospital. The family and personal history were negative. There had been a gradual development of weakness and stiffness of the left arm and leg. This had lately increased to such an extent as to interfere with the use of the left arm altogether. The left leg was stiff and rigid, and was dragged during walking; he had no pains in the extremity.

Examination gave the following: Mental condition was dull

and apathetic; there was a tendency to somnolence; when aroused the mind was clear. Pupils were equal in size and reacted to light; papilla was swollen and injected; there was choked disc; the external muscles of the eyes were normal in function. There was no defect in sensation of face or scalp; the left side of face, lower half, was paretic; the tongue protruded to the left. The left arm was rigid and spastic; the radial and triceps reflexes were increased; the muscular strength was reduced almost to a minimum; the size, the surface temperature and the sensation of arm were normal. The leg was normal in size and temperature, the muscles rigid and hard, the limb in condition of spasticity, the reflexes increased. There was ankle clonus; muscular power was almost entirely lost; he was scarcely able to walk; dragged the leg; the sensation was normal. The diagnosis was spastic hemiplegia, subcortical brain tumor.

The skull over this region was trephined, and a piece of bone two inches in diameter was removed; the bulging of the brain and membranes was very marked; but on opening the dura the cortex of the brain was found intact. An incision was made through the cortex about an inch in length; but, as proved later, this was not deep enough. No tumor being found, the wound was closed. Death occurred six hours later from shock. The autopsy showed a soft yellowish mass, fully the size of a hen's egg, occupying the region of the nucleus lentiformis of the right side; it extended outward to within one-half inch of the cortex, extending upward into the region of the ascending frontal convolution and parietal lobe, viz.: the centrum semiovale; inward and downward it extended to the internal capsule. The microscopic examination showed the growth to be a tubercle.

*Case IV.*—Tumor, cortical and subcortical of the foot center. Jacksonian epilepsy. First seven years Jacksonian epilepsy was not followed by paresis, but only by subjective sense of numbness. Gradual development of hemiplegia. Objective sensation normal.

J. H. was admitted to Cincinnati Hospital. He complained of numbness of the left arm and leg, followed by affected areas, lasting about half an hour. His family history was negative.

About seven years before, while ascending a ladder, his left leg suddenly became helpless, causing him to make a misstep, and he fell a distance of fifteen feet, but as he fell on a sofa he sustained no injury at the time. He did not lose consciousness, but immediately felt numb in the entire left half of the body; this feeling lasted about twenty minutes. After the numbness passed away he went to work, feeling no ill effects. About a month later he was seized in the same manner, and the attack lasted about the same length of time. His paroxysms during the past years may be summed up as follows: (1) Frontal headache, last-

ing about twenty minutes; (2) vomiting, the vomitus consisting principally of bile; (3) tonic spasms of left arm and left leg; (4) numbness and weakness, lasting about thirty minutes, after an attack.

Examination: His cerebration was somewhat slow, and he had a slight difficulty in talking.

Optic neuritis: pupils react to light and accommodation; third, fourth and sixth nerves were apparently normal; fifth, motor and sensory normal; seventh, weakness of muscles of left side of face; ninth, tongue deviates to the left side; tenth, some difficulty in breathing in morning; eleventh, on turning head to left severe pain in right occipital region; similar pain in left on turning head to right; twelfth, normal. There was some difficulty in swallowing. Motility, muscular power and grasp of right arm apparently normal and equal. Flexion, extension and power of right leg normal. Right leg was affected at times, but only temporarily; often had passing weakness, rigidity and ankle clonus on right side. Unable to lift left leg from bed when extended, and when it is elevated cannot flex nor extend it; resists bending somewhat, but no pain on bending. Left arm becomes exhausted easily; some incoordination; slightly weaker than right.

Gait: Dragged left leg and foot; left arm hung almost motionless at side, although he had use of it; head inclined to the left side.

Sensation: Pain, tactile, heat and cold, normal.

Reflexes: Right and left knee-jerks exaggerated; right and left ankle clonus marked; right and left wrist-jerk marked; right and left elbow-jerk marked.

Exploratory trephining was done; patient died of shock.

Autopsy: The longitudinal sinus was obliterated by a soft, semi-fluid, cream-colored growth. Under the dura mater was a growth about the size of a goose egg, which began on the surface about two inches from the tip of the first frontal convolution and extended backward along the longitudinal fissure to about two inches to the fissure of Rolando.

The cortical size of this growth was about three and one-half inches, and occupied the posterior half of the first and second frontal and ascending parietal convolutions around the fissure of Rolando and backward into the gyrus angularis. It bulged into the longitudinal fissure and pressed on the median surface of the psychomotor area of the left side.

Subcortically it extended into the corona radiata, pressed on and destroyed portion of the lenticular nucleus and the fibers of the internal capsule. The cortex above the tumor was entirely obliterated, whereas the cortex of the lower portion of the psychomotor area and the portion of the corona radiata beneath it were intact.



The tumor was soft and fluctuating. On section it was semi-solid, very soft, creamy in color and rather vascular. After being hardened it proved to be non-infiltrating, and could be shelled out with ease. Microscopic examination proved the tumor to be a gliosarcoma.

Both of these cases are almost identical with Schaffer's case. In both we have a complete spastic hemiplegia. In both the corona radiata of the motor area was extensively destroyed; still there was no hemianesthesia.

*Case V.*—Circumscribed tubercular abscess of the lower third ascending frontal convolution, left side. Diminution of pain sense of right facial region.

F. E., male; aged forty-two years; widower; conductor. Admitted to Cincinnati Hospital March 4, 1901, in state of syncope, and no history obtainable, except has had headache for some time and has been dizzy.

Examination: Paresis of right side of face. Paresis of right arm and leg. Diminution of pain sense in face.

Sensation otherwise normal.

Died March 10, 1901.

Post-mortem: Brain when taken out was very soft and flabby, the left lobe being especially so. On the cortical surface, in an area extending downwards from the lower half of the anterior ascending frontal convolution to the base of the brain, and bounded posteriorly by the fissure of Rolando, inferiorly by the fissure of Sylvius, and anteriorly infringing on left inferior frontal and middle frontal convolutions, was an area of softening. After hardening in formalin, this proved to be a globular mass which could be shelled from its surroundings. The mass was hollow, and filled with greenish pus. Brain tissue surrounding the mass was also extensively softened. Whether this is a broken-down tumor or a tubercular abscess microscopic examination must determine.

Histological examination: Brain. From what was a cyst or cavity filled with purulent material, sections were made and stained according to two methods:

(a) Mallory's, to determine the presence of any overgrowth of glia tissue; this the specimens examined did not show. (b) Hematoxylin-eosin. The wall of the cyst, which was about  $1/32$  inch in thickness, shows a very intense small-celled infiltration, with an inner layer; next the cavity ragged and in many places broken down and degenerated; while no typical tubercles were found, there were many rather small, suspicious nodular collections of cells, which were taken to represent tubercular areas; the outermost area showed a layer of thickening, which we think was glia proliferation, in spite of the fact that the Mallory specimens

were negative. There was also meningeal thickening over the area.

The location of this tubercular abscess, secondary to pulmonary tuberculosis, explains the aphasia, and also the facial paresis, as it involved the lower half of the frontal region on the left side (speech center) and extended back to the precentral convolution; the arms and leg centers were not included in its territory. No study of secondary degeneration was made, as the brain was in a state of decomposition when obtained.

In this case we have a localized softening and tubercular abscess in the lower third of the left ascending frontal convolution, with distinct diminution of sensation in the right side of face.

The tendency has become more and more manifest in the past decade to overthrow some of our fixed ideas as to the motor areas of Hitzig and Fritsch.

H. Munk says: "After total extirpation of arm and leg area, tactile sensibility of opposite extremities is permanently lost. This conclusion, verified apparently by Schiff, is denied by F. A. Shafer in a paper read by him before the Congress of Physiologists at Cambridge, England, August, 1898. *J. Physiol.*, Vol. xxxii., p. 310. Shafer operated on thirty monkeys.

His conclusions are : (a) A complete voluntary motor paralysis of a part may be produced by cortical lesion without perceptible loss of tactile sensibility. (b) Motor paralysis, which is produced by a lesion of the Rolandic area, is not the result of sensory disturbance. (c) Tactile sensibility is not localized in the same part of the cortex from which voluntary motor impulses directly emanate. He says that it is certain that the motor cortex receives afferent sensory fibers from the sensory region of the brain; that the irritation or destruction of these fibres explains the subjective and slight objective disturbances seen in motor paralysis.

Notwithstanding these observations, Munk persistently refuses to call the Rolandic area by any other name than the body-sensation area, and his opinion has gradually gained ground, backed by such authorities as Flechsig, Dejerine, Luciani, Sepilli, who hold the extreme view that the sensory and motor areas are identical. These views have always been opposed with much vigor by Hitzig, who claims that his original views concerning the motor functions of the Rolandic area have full value to-day.

Ferrier holds that the sensory areas are in the temporo-sphenoidal lobe.

Schaffer has recalled his views concerning the gyr. fornicatus.

Horsley held that the gyr. fornicatus is the sensory center, but has modified his views to the extent of attributing tactile and locomotion sense to the motor area.

Flechsigs limits his "body sensory" sphere to the ascending frontal and parietal convolutions, a slight part of the frontal lobe, the supramarginal gyrus and the gyr. subangularis. He holds that motor and sensory cortical areas are located side by side in this region. He denies any sensory functions whatever to the other parts of the parietal lobe.

Von Monakow, whose views are shared by Starr, Dana, Oppenheim (Tenth Int. Med. Cong., Paris) : *Neurologic*, page 105), says, "that pathological investigations prove that these centers are more extensive than the embryological researches of Flechsigs would seem to indicate." "There appears to exist a fundamental difference in manner in which the motor and sensory fibers radiate. The motor bundles issue from the point of reunion (pyramidal tract in the internal capsule), sharply defined, distributed in and around the motor zone, while the sensory centripetal fibers spread themselves out in the cortical sphere over a large surface, not sharply defined, in such a way that in the cross section of the radiation the central portion shows the fibers more densely packed. The sensory fibers and their centers in the thalamus degenerate only to a slight degree, and only when almost the entire cortical connection is destroyed. Their degeneration is not at all in direct proportion to the primary lesion, as is the case with the pyramidal tract. The method of secondary degeneration is therefore not of much avail in the laboratory study of cortical localization of sensory lesions, and we must fall back upon clinical and pathologico-anatomical investigations."

*Case VIII.*—Weakness of both arms and legs; complete aphasia. Forced turning of head and neck to left. Left-sided hemianalgesia and thermanesthesia. Bilateral thrombosis of middle cerebral arteries. Old atrophy of right lower third of Rolandic area. Acute cortical softening of the left island of Reil, post. ascending parietal, the anterior portion of first and second parietal convolutions, and the first temporo-sphenoidal convolution.



History: W. T. aet. 56; admitted to "L" Neurol. February 27, 1902.

Previous history: Had repeated paralytic strokes during past six months. Had one on the night before admission.

Present history: Admitted to ward late at night; unable to speak; apparently right side of body paralyzed; next morning arose; was found sitting on chair, dressed; unable to talk; continually holds head in position toward left shoulder.

Examination: Mental condition apathetic; unable to speak; is not comatose nor semi-comatose; pupils equal in size and react to light. External muscles of eyes apparently normal in function; eyes are not turned to the left. No nystagmus; right angle of mouth lower than the left; tongue normal.

Sensation of face: Perhaps a slight diminution for pain and temperature, but not positive.

Paresis of both arms, but can move and use both to some extent.

Paresis of both legs, ankle clonus of the right foot; no exaggeration of patellar reflexes; foot reflex of the right foot diminished; flexion of toe (no Babinski); foot reflex of left leg enormously exaggerated; apparently that of arms also.

On third day had a new apoplectic attack *without loss* of consciousness. This attack was followed by:

(a) Complete motor paralysis of right side, lower half of face, arm and leg.

(b) Complete analgesia of right side of face, arm and leg and trunk.

(c) Complete thermanesthesia for right side, face, arm, trunk, and leg.

(d) Reduction of all reflexes and total abolition of foot reflex.

On account of complete aphasia, an examination of sense of touch, muscle sense, spacing sense, and stereognostic sense was impossible. After last attack, reaction of left pupil to light absent.

Pulse, 144; small, easily compressible. Without undergoing any change from above condition, patient died seventy-two hours after the last apoplectic attack.

*Post-mortem: Brain*—Circle of Willis shows marked arteriosclerosis. Complete thrombosis of middle cerebral artery of the left side. Pia removed with great difficulty over posterior portion of second frontal convolution, left side, its removal showing acute softening of the posterior portion, which extends through entire gray matter into the white substance below. Lower portion of the ascending frontal convolution shows an acute softening of the gray matter, extending into the white substance. Middle and upper third of ascending frontal convolution and paracentral convolution are normal. Ascending parietal convolution, middle

third, shows acute softening. There is acute softening of the anterior part of the superior parietal convolution, with the exception of the portion adjacent to the longitudinal fissure. There is also acute cortical softening of the lower parietal convolution, of the convolution of the island of Reil, and the temporo-sphenoidal convolution, and the adjacent portion of the gyrus angularis. The beginning of the right middle cerebral artery is also thrombosed. There is an old cicatricial atrophy of the lower portion and middle third of the Rolandic area on the right side, and especially of the ascending parietal convolution; but the cortex of the entire parietal lobe and speno-temporal lobe, with the exception of above-mentioned portions, is normal. The peduncles, pons, medulla oblongata, and the upper portion of the cord showed absolutely no *gross involvement*.

The special interest of this case, aside from the unusual condition of bilateral thrombosis of the middle cerebral artery, lies in the fact that it throws some light on the question of cerebral cortical localization for sensory impressions.

Let us first take up clinically the left side of the body—weakness of both arm and leg, enormous exaggeration of foot reflex, no exaggeration of other reflexes, no contracture. Pain sense and temperature sense normal. No statement can be made of other qualities of sensation on account of mental condition. Pathological state of right hemisphere: Old thrombosis of the middle cerebral artery, with great atrophy of the lower Rolandic area, especially the lower two-thirds of the ascending parietal convolution. This atrophy amounted almost to a disappearance of the convolution named. The remaining portions of Rolandic area, the cortex of the speno-temporal and parietal lobes are perfectly normal. Here we have an atrophic condition of the Rolandic area, followed by paresis of the opposite side of the body, with normal parietal lobes, no loss of sensation, at least for pain and temperature.

On the right side of the body we have a complete facial and arm paralysis, almost complete leg paralysis with ankle clonus, and a complete loss of sensation, pain and temperature, for face, arm, trunk and leg.

Pathologically we find a recent occlusion of the left middle cerebral artery and an acute cortical softening, which is very marked in the anterior portion of the parietal lobe, the island of

Reil, the first speno-temporal convolution, and the gyr. angularis, besides affecting the posterior second frontal and a part (small) of the ascending parietal convolution.

This case proves very much concerning the cortical localization of sensory functions. (a) It proves that the psycho-motor area does not receive cortical impressions for pain and temperature, for on the left side of the brain these centers were acutely affected, as evidenced by the complete paralysis of arm and leg; and on the right side of the brain these centers, in part at least, were completely atrophic as a result of an old thrombus in the middle cerebral artery, and still temperature sense as well as the sense of pain, was normal in face and in the arm of the left side of the body. It seems to me that this case is unique in so far as both sides of the Rolandic area were affected by the same cortical process. (b) This case would seem to prove that the loss of temperature and pain sense was due to an acute cortical softening of the anterior part of the superior and inferior parietal convolutions. I take it that the softening of the island of Reil and the first temporo-sphenoidal convolution were the cause of the aphasia. Whether the mental disturbance was due to an acute process, or whether it was the result of the general brain atrophy, which was undoubtedly present, is difficult to say. The brain weighed but 1,000 gms.

This case would also prove that the sensory functions have a distinct cortical representation, for the subcortical softening was present only in spots beneath the parietal lobe, the largest of these being about the size of a franc piece and not extending more than  $\frac{1}{4}$  inch beneath the gray matter. The internal capsule, nucleus caudatus, nucleus lentiformis, and the thalamus opticus, as well as the structures of the pons and medulla, were intact.

More detailed microscopic examination of this case will be made and published later by Dr. Wolfstein, Neuropathologist to the Cincinnati Hospital.

*Case VI.*—Subcortical tumor of the left arm center, Jacksonian epilepsy, paresis, subjective numbness after operation, soul anesthesia.

Edw. O'B., aet. thirty-one, single; no venereal disease. Onset of trouble one year ago, with attack of Jacksonian epilepsy.



The attack always preceded by numbness; numbness occurs at times without epileptic attack, in fingers of right hand.

After one year, during which he had fifteen attacks of Jacksonian epilepsy, he developed weakness of right arm and leg, with tendency to ankle clonus; especially paresis of extensor pollicis. No objective disturbance of sensation.

No choked disc, no headache; dizziness, vertigo. Left Rolandic area, tumor was found subcortical, arm center, ascending frontal convolution, and was removed.

Developed a marked hemiplegia, and after operation Dr. Zenner discovered that with a normal touch, pain and temperature sense, there was imperfect spacing sense, marked astereognosis and loss of posture sense in the fingers.

VII.—B. H., aged twenty-six years; machinist. Admitted August 6, 1898, with the following history: Last September, while at work in a coal mine, hand began to cramp; then the arm began to jerk (flexion and extension); then heart began to beat fast; then head got light, and he stood up until it made him fall; down for two or three minutes; got up and went to work. Three months later had another attack; one month later another attack. Then every three weeks. His left eye twitches when he has the spells. Had last attack three days ago. Jacksonian attacks continued almost daily.

The paresis, always present after an attack, gradually became more and more marked in the interval, until toward end of life there was present a marked paresis, more marked in the left leg than in the arm. Spastic in character, with exaggerated reflexes, ankle clonus and some contracture.

Sensation: Tactile, pain and cold normal. Heat: Seems to be some inability to recognize heat easily over inner side of left ankle and sole of left foot. Died February 3, 1899.

Post-mortem ten hours after death: Brain—Large cortical gumma not involving the dura mater; localized in the upper end of the fissure of Rolando; about  $2\frac{1}{2}$  inches in diameter. The gumma was flat, occupying the gray matter, at no place more than  $\frac{1}{4}$  inch in thickness, scarcely extending into the subcortical tissue and separated from the latter by a thin layer of dense, almost cartilaginous connective tissue.

Case IX.—Anna M. aet. thirty. Admitted to "N" Neurolog., October 19, 1901. Nine months ago spasm of right arm, followed by numbness and weakness. Weakness disappeared; numbness has remained. Has a continual sense of numbness, formication and pain in right hand. (This subjective disturbance of sensation was constant for two years before final operation.) Epileptic seizures occurred about once a week. Lately has had slight weakness of right arm.

Examination: Mental condition absolutely normal. Diminution of acuity of vision, choked disc, slight paresis of right side of tongue and arm; right leg not affected.

Sensation: Subjective—Pain and numbness in the right hand and forearm.

Operated upon January 8, 1903. Died.

Autopsy: Glioma,  $1\frac{1}{2}$  inches in diameter, perhaps  $\frac{3}{4}$  inch thick, was found occupying the middle third of the ascending frontal convolution, extending anteriorly over the frontal lobe, but not extending behind the fissure of Rolando. It is extra-cortical, but has depressed and flattened the cortex beneath it, forming a circular cavity, perhaps  $\frac{3}{4}$  inch deep; the gray matter of the cortex is depressed, but not destroyed.

In both of the foregoing cases of cortical brain tumors occupying a rather extensive area and producing Jacksonian epilepsy, with monoplegia and hemiplegia, we have little or no objective disturbance of sensation, although the subjective disturbance was well marked.

If we view Case No. 6 critically, we shall see that Brissaud's views are also no longer tenable. Brissaud put forward as a hypothesis that the sensory centers were in the motor area, and that each side of the brain received impulses from both sides of the body, and that this accounted for the disappearance of sensory symptoms after the acute stage of cortical lesion. He held that cortical lesions, in order to produce permanent disturbances of sensation in the motor region, must penetrate the white substance of the subcortical region. That this cannot be looked upon as an anatomical or physiological law is abundantly proved by the above and other published cases.

Case No. 6 would tend to strengthen the contention of Knapp, Allen Starr and McCosh. From two operated cases they deduce the conclusions that tactile and muscle sense are located in the ascending parietal and other motor zones, temperature and pain sense in the parietal lobe.

*Case X.*—M. B., aet. forty; single; mechanic. Had syphilis twenty years ago; never been nervous or hysterical. Three days ago, while seated in a chair, had sudden attack of faintness and vertigo; was afraid to rise for fear of falling; felt a sense of numbness and loss of strength in the entire left side. On attempting to use arm and leg, found that he could not do so.

Examination: Mental condition good. No change in eyes, face or tongue. Slight weakness of left arm, not marked; no change in left leg. Special senses normal. Complete thermanesthesia of left arm, left side of trunk and left leg. No increase in reflexes. Gradually improved under antisyphilitic treatment.

Two years later examination showed normal muscular power, some thermanesthesia present over left arm, left side of trunk and left thigh. In my opinion, this case was an organic and not a hysterical case.

That temperature sense must have a different localization from the other senses seems to be plausible from Case No. 10, in which, after a slight apoplectic attack, there was only to be found objectively a loss of temperature sense. More accurate localization of the special qualities of sensation have not as yet been determined, except Dana's view of the parietal lobe being specially connected with muscle sense.

One thing seems certain about the cortical sensory functions, and that is, that they are radically different from the motor functions. Destruction of small cortical areas invariably produces motor irritation, paresis or paralysis; whereas, while cortical lesions may, and at times do, produce sensory symptoms, even large and destructive lesions of the cortex and subcortical regions, such as illustrated by the Erb brain tumor case and by cases I. and II., do not produce objective disturbances of sensation.

The conclusions which we can draw are as follows:

1. Acute softening of the cortex of the area supplied by the middle cerebral artery produces, in addition to a complete hemiplegia, a complete hemianesthesia.

2. Chronic degeneration and atrophy of the lower Rolandic area, produced likewise by thrombosis of a branch of the middle cerebral artery to a very marked degree, was not followed by a permanent loss of sensation of the opposite side of face and arm.

3. Tumors destroying the cortex and subcortical regions of the motor area very frequently have subjective disturbances of sensation, such as pain, formication and feeling of numbness. Objective disturbances of sensation may occur, but are usually slight; and even in lesions producing great motor destruction, leading to complete hemiplegia, we do not usually find sensory disturbances which are at all proportionate to the motor disturbances.



In view of the fact that in the majority of cases of lesions of the cortical motor area or pyramidal tract, according to some authorities in 66 per cent. of the cases, sensory symptoms are absent; in those cases in which they are present the sensory manifestations are slight and out of all proportion to the motor symptoms, we must conclude that the sensory tracts and the cortical sensory centers are not identical with the tract or motor areas, that the extreme views of Munk, Flechsig, Dejerine, Long and others cannot be valid for man. We would rather incline to the views of Von Monakow, viz.: that general body sensations have a bilateral representation, and that sensory impressions may reach the cortex by vicarious routes, if the paths which they usually follow happen to be destroyed.

My personal view is that the chief cortical sensory areas, at least for pain and temperature, are located in the anterior portions of the parietal lobe, and that tactile and muscle sense are located in the Rolandic area.

If we sum up our experience with regard to the thalamo-cortical neurone, we know that acute hemorrhagic destruction of the thalamus opticus (Probst case), or acute hemorrhagic destruction of the corona radiata between thalamus and cortex (Schaffer case), or acute cortical softening, such as is produced by thrombosis of the middle cerebral artery, lead to hemianesthesia, and it would seem that the physiological character of the thalamo-cortical neurone as a sensory conduction tract would have to be looked upon as a fixed fact.

On the other hand, we know that chronic lesions, such as tumors and softening of either thalamus or of the subcortical white substance or of the cortex, may, and very often do, exist without causing any pronounced disturbances of sensation, although they are located in the same areas and destroy the same tissues as the acute lesions.

The acute lesions certainly do verify the newer anatomical and physiological investigations concerning the thalamo-cortical neurones. The chronic lesions leave us but one explanation, viz.: von Monakow's theory of bilateral representation and vicarious routes and centers for sensory impressions.

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Therap.
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## TWO TUMORS OF THE BRAIN.<sup>1</sup>

(A) CYST OF RIGHT OCCIPITAL LOBE; (B) ENDOTHELIOMA OF THE LEFT  
FRONTAL LOBE.

By T. M. T. McKENNAN, M.D.,  
OF PITTSBURG, PA.,

PROFESSOR OF NERVOUS AND MENTAL DISEASES IN THE WESTERN PENNSYLVANIA  
MEDICAL COLLEGE.

(A) April 2, 1903, H. F. C., age fifty, plumber, was referred by Dr. Trevaskis, of Turtle Creek. Three years ago he began to have headache and pain over the eyes. One morning on arising he was nauseated, and shook as though from a chill. The left arm and leg jerked for a time and a general convulsion followed. His head turned to left side. Impairment of eyesight was noticed the next day. Five of these attacks occurred in three years. Each attack was characterized by a jerking of left arm and left leg for four or five minutes, and was followed by a loss of consciousness, with general convulsive movements. The head was turned towards the left side. A bitter tongue and drowsiness followed the attacks.

The patient's general health failed rapidly, on account of a constant nausea and inability to digest even simple food. He complained of a constant dizziness upon walking and had severe headache. He said that the left side was weak. Dynamometer showed left arm 70, right 80.

Left-sided hemianopsia was easily detected, the field of vision being contracted one-half on the temporal side of the left eye and one-third on the nasal side of the right eye. The optic disks showed no abnormality. Iritic reflexes were very slow. Knee reflexes were normal. There was word blindness. He could tell individual letters, and could spell out some small words, but could not tell their meaning and was thus utterly unable to read. He could name practically objects that he was familiar with by sight, but could not read. He could write from dictation and also voluntarily, but was unable to read what he had written. Everything spoken to him was understood. Stereognostic sense was perfect. There was, however, much mental sluggishness.

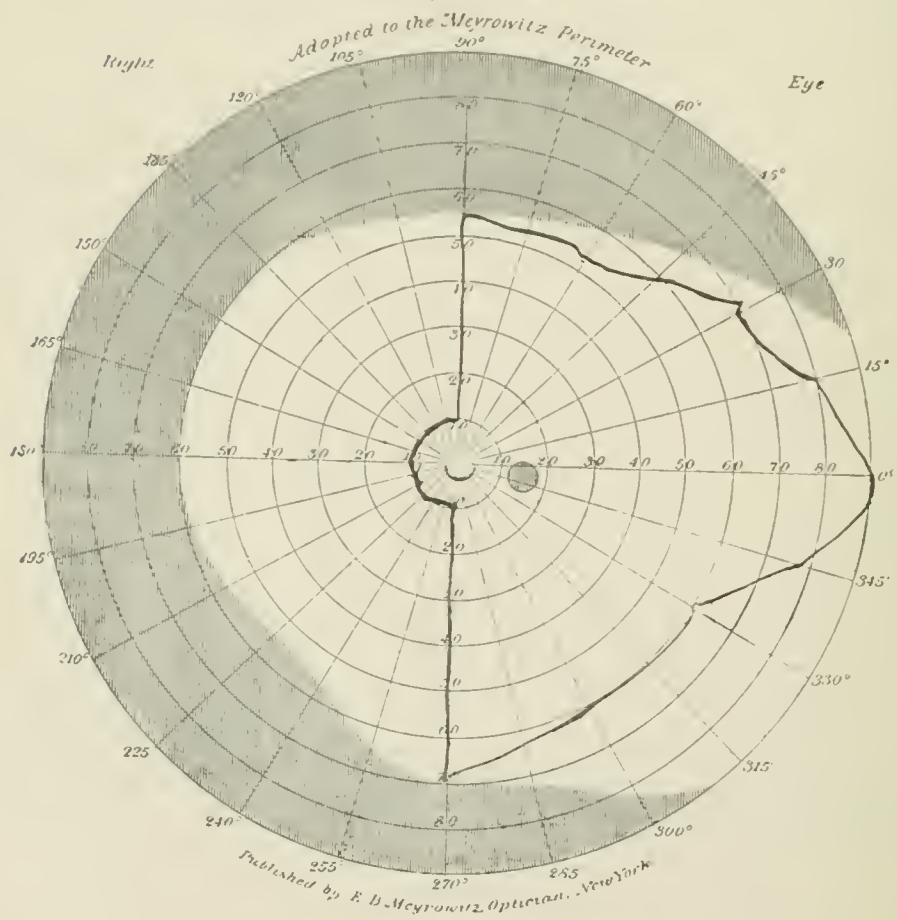
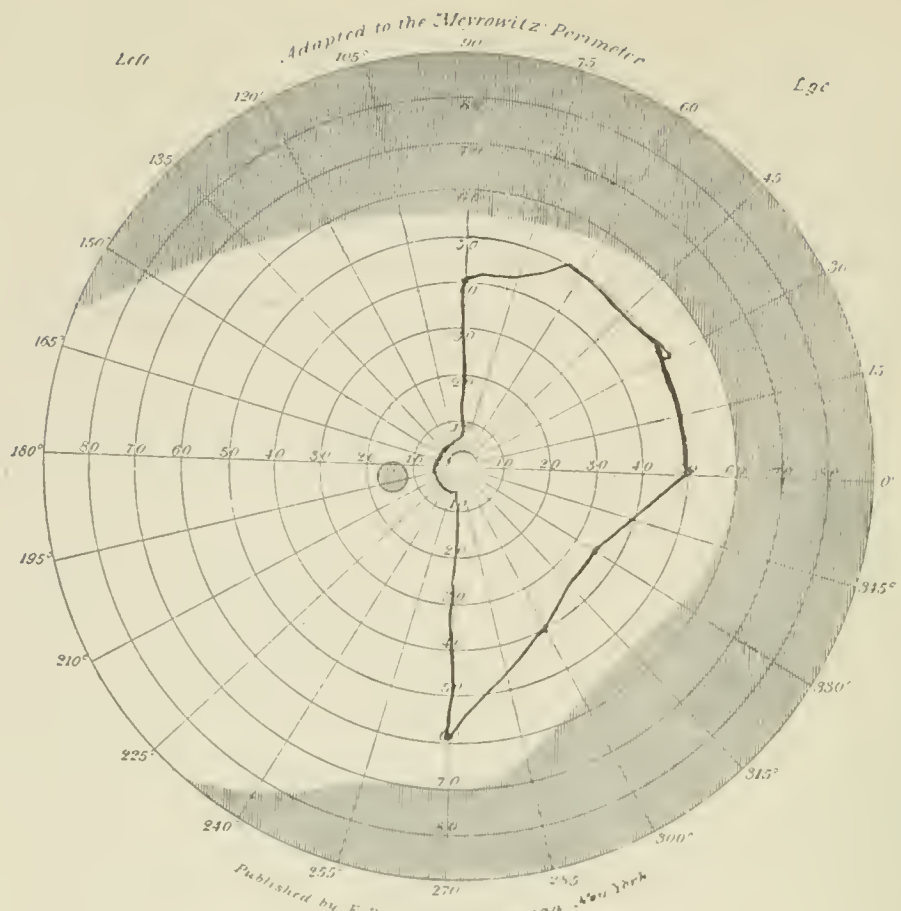
He also had a delusion of unfaithfulness on the part of his wife, dating back three years. A diagnosis of probable tumor of the occipital lobe of right side was made. He was operated upon April 14, 1903, by Dr. E. C. Stuart.

Dr. Stuart trephined over right occipital lobe making his opening one inch caudad to the external occipital protuberance and one inch to the outer side, thus avoiding the sinuses. The

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<sup>1</sup>Read before the Allegheny County, Penna., Medical Society, November 17, 1903.





opening was made with a medium-sized trephine, and, upon opening the dura, a cyst pushed forward into the trephine opening. This cyst was covered with a very thin mantle of cortical substance, beside the arachnoid and pial coverings. Upon nicking it with scissors it evacuated so rapidly that we were unable to obtain any of the fluid. It had no true limiting wall, but seemed to be directly in the white substance, and, doubtless, had originally been deeper situated, but gradually, by pressure, caused the cortical substance to become thinner and thinner, until the cyst practically reached the surface. It was probably hemorrhagic in origin. Search with the finger failed to reveal any neighboring tumor or abnormality. The cyst was estimated to contain about  $1\frac{1}{2}$  ounces of fluid.

The cavity was lightly packed with iodoform gauze. During the first twenty-four hours after operation there was a free transudation of cerebrospinal fluid, slightly stained with blood, probably 18 or 20 ounces. At the end of this time the packing was removed, and there being no free bleeding, only the opening in the scalp was packed. The wound healed promptly. During the time when the packing was in the wound there was great mental confusion and paraphasia was marked. This ceased as soon as the packing was removed. There was slow improvement in his general condition, the headaches ceased and strength gradually returned. There was no improvement in the hemianopsia and the alexia was the same as before the operation. He went home on May 28th.

I saw him next on July 17th. He was then able to read a little, the hemianopsia was the same. His general condition had improved very much and he had gained twenty pounds in weight. The delusion regarding his wife had disappeared.

On October 8th, the condition was about the same. He was able to read better. The hemianopsia was the same.

On November 7th he reported again. He had been working for two weeks and was getting along very well. He was able to read, but slow in doing it and did not read much on account of the strain hurting his eyes. He could write from dictation and voluntarily and was able to read his writing. The hemianopsia was about the same. Dr. E. B. Heckel examined his eyes, found the optic disks normal and made the accompanying charts, showing the limitation of the field of vision. He reported also a hyperopia of  $\frac{3}{4}$  diopter and insufficiency of the external recti of 5 degrees.

Considering the relative frequency of brain tumors, it seems strange that so few are found in the occipital lobe. Then again, when we consider the known significance of hemianopsia as a symptom, it is strange that more cases of tumor of the occipital lobes are not diagnosed.

The following tables comprise the cases reported to date, as far as we have been able to find them. There are doubtless unreported cases, however, in existence.

The cases number twenty-four, including my own case.

It will be seen from the tables<sup>2</sup> that of the twenty-four cases reported, death resulted in seventeen. Recovery in three, and in four the result is not stated, or unknown. In seven cases an autopsy made known the existence of a tumor. The cause of death in most cases operated upon was either hemorrhage or respiratory failure. The hemorrhage was probably from either the lateral or superior longitudinal sinus, as these lie close to the operative field. The character of the tumor, when stated, is found to be either sarcoma or glioma and three were cases of cyst.

TUMOR OF THE LEFT FRONTAL LOBE, EXTENDING BACK TO THE  
ROLANDIC AREA.

(B) Mrs. B., aged 26, mother of four children, was first seen September 1, 1903, with Dr. Hegarty. No insanity or nervous diseases were known in the family. She had always been well until two years ago. In June, 1901, she had suddenly a convulsion and loss of consciousness. These attacks became frequent, on an average three times a week and have persisted to the time of examination. The attacks were nearly always preceded by aphasia and muscular twitchings of the right side, most marked in the face and arm muscles. General convulsive movements usually occurred, with loss of consciousness, but sometimes the attacks would not be attended by general convulsions and loss of consciousness, but merely consisted in aphasia and twitchings of the right side. After the severe attacks the right side would be weak for a time and headache would follow. There was seldom any vomiting, but nausea sometimes existed for several hours. The tongue was sometimes bitter. She was pregnant when the convulsions began and she went to full term. She became pregnant again and was confined on August 4, 1903, at full term.

Since then she has been mentally much worse and has had much mental confusion, with delusions of fear and hallucinations of sight. She sees people coming into the room, chiefly through the windows. During the greater part of the time in the last two years there has been more or less marked mental change, varying in degree; the most marked feature being mental confu-

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<sup>2</sup>The tables are placed at the end of this article.



sion. No staggering or vertigo was ever observed. Vision has failed steadily since the first convulsion.

*Physical Examination.*—On the left side of the head there is a marked enlargement appearing to the eye and to touch, as though the skull had been pushed outwards. This tumor is slightly below the level of the frontal eminence and about one inch in front of the Rolandic area. It first appeared about six months ago, when the headache was bad and would at times almost disappear. It has lately become persistent. The tongue on protrusion deflects slightly to the right. The right arm and right leg are markedly weak. The leg weakness has only lately become marked. Knee-jerks are plus. A slight Babinski is obtained on the right side. An ophthalmoscopic examination reveals a high degree of optic neuritis.

The symptoms clearly indicated a brain tumor, probably starting in the frontal lobe of the left side, causing irritation of the motor cortex at first, and, finally, by its increase in size, causing paralytic symptoms by pressure on the motor area.

She was taken to the St. Francis Hospital, on September 2nd, and on September 5th Dr. E. C. Stuart operated. It was thought best to make the bony prominence the center of the operative field, and the skin flap was made in accordance with this. On removing the periosteum from this prominence, the bone was found to be much softened and was removed with a curved chisel. The bone was thickened and there was a great deal of capillary oozing. The dura beneath was much thickened and of a dull gray appearance. The opening in the skull was rapidly enlarged upwards, forwards and backwards. The dura was incised and a tumor was immediately revealed. This was removed piecemeal and was found to weigh three ounces and was encapsulated. The cavity was packed with iodoform gauze. On September 8th a chill occurred and she became unconscious. The temperature gradually rose until it reached 108 F., and she died on the 9th of September.

An examination of the head after death was made by Dr. Murphy, the resident physician. The cavity was found filled with blood clots, the cavity extended downwards and backwards towards the floor of the skull for  $4\frac{1}{2}$  inches. There was no sign of meningitis nor of infection. A necropsy could not be obtained.

The tumor probably originated in the second frontal convolution and in its growth extended backwards, downwards and upwards, involving finally the ascending frontal and the third frontal convolutions. The tumor was examined by Dr. R. J. Burns, of Allegheny, and pronounced endothelioma. The case, save for the bony prominence, is very similar to case 21, reported by Dr. Starr in his work on "Brain Surgery."

# CASES OF TUMOR OF THE OCCIPITAL LOBE REPORTED SINCE 1893.

<i>Reporter Date Reference</i>	<i>Diagnosis</i>	<i>Operation</i>	<i>Situation and nature of tumor</i>	<i>Result</i>
Caton, Liverpool Med. Journal, 1894, vol. 14, page 447.	Tumor of left occipital lobe.		Tumor of left occipital lobe accompanied by left hemiplegia.	Not stated.
Oswald, Glasgow Med. Jour., 1894, vol. 42, page 381.	Tumor of right occipital lobe.	Autopsy.	Tumor of right occipital lobe.	Death.
Eskridge, Medical News, 1894, vol. 64, page 261.		Autopsy.	Tumor of right occipital lobe.	Death.
Pitt, Brain, 1898, vol. 21, p. 331.		Autopsy.	Two tumors of occipital region.	Death.
Sharkey, Brain, 1898, vol. 21, p. 323.	Tumor of left occipital lobe.	Autopsy.	Glioma of left occipital lobe.	Death.
Sharkey, Brain, 1898, vol. 21, p. 323.		Autopsy.	Tumor of left temporo- sphenoidal and occipi- tal lobes.	Death.
Bramwell, Brain, 1899, vol. 22, p. 23.		Autopsy.	Tip of left occipital lobe.	Death.
Bramwell, Brain, 1899, vol. 22, p. 41.		Autopsy.	Gumma of left occipital lobe.	Death.
Bramwell, Brain, 1899, vol. 22, p. 42.			Sarcomatous tumor of left occipital lobe.	Death.
Bramwell, Brain, 1899, vol. 22.	Intracranial tumor, prob- ably left occipital lobe.	No tumor found.	Left occipital lobe. Au- topsy. Enormous gli- omatous tumor involv- ing left frontal; tem- poro-sphenoidal and occipital lobes.	Death in one month.
Batten, Brain, 1899, vol. 22, page 473.	Tumor of left occipital lobe.		Tumor of left occipital lobe.	Not stated.

Williamson, British Med. Journal, 1901, p. 12.	Cerebral tumor in front of leg center.	Trephining. No attempt to remove the growth.	Cerebral tumor at parieto-occipital fissure. Autopsy. Mixed-cell-sarcoma.	Death one month later.
Clarke, British Med. Journal, 1901, p. 879.	Intracranial tumor of parietooccipital region.	Tumor removed. Two months later second operation, large tumor removed, having been overlooked at first operation.	Sarcoma of brain.	Recovery.
Mingazzini, American Medicine, 1901, vol. 1, page 136.	Cerebellar growth.	Lumbar puncture.	Echinococcus cyst of occipital lobe. Autopsy.	Death next day.
Iltoppe, Journal Medical Assoc., 1901, vol. 36, page 302.	Tumor of left occipital region.	Tumor size of walnut removed.	Tumor of left occipital lobe.	Four years after patient working, able to see well.
Sinkler, Medical News, 1901, vol. 79, page 434.		Trephining over occipital lobe. Cyst size of egg.	Sarcoma of occipital lobe.	Not stated.
Thiem, American Medicine, 1902, vol. 3, p. 721.		Trephining over occipital lobe. Much pus-like material escaped which proved to be broken-down gumma.	Cyst of left occipital lobe.	Not stated.
Dutt, British Medical Journal, 1903, page 1013.	Case of brain tumor.	Trephining over occipital lobe.	Lesion in the angular gyrus, extending back into its occipital convolution.	Death 18 days later.
Starr, "Organic Nervous Diseases."	Tumor of occipital lobe.	Trephining over occipital lobe.	Sarcoma of occipital lobe.	Temporary recovery, followed by death in 3 months.
McKenna and Stuart's report.	Tumor of right occipital lobe.	Cyst size of hickory nut removed.	Cyst of right occipital lobe.	Recovered. Six months afterwards was still well. Hemianopsia however was not improved.



# CASES OF TUMOR OF THE OCCIPITAL LOBE REPORTED UP TO 1893.

<i>Reporter Date Reference</i>	<i>Diagnosis</i>	<i>Operation</i>	<i>Situation and nature of tumor</i>	<i>Result</i>
Birdsell and Wier, Philadelphia Med. News, 1887.	Tumor, right occipital lobe.	Trephining 1 in. above occipital protub. 1 in. from med. line, tumor too large for removal.	Sarcoma top right occipital lobe.	Death in few hours from hemorrhage.
Pilcher and Dana, Annals of Surgery, 1889. Wood and Agnew, University Medical Magazine, 1889.	None. Left hemianopsia pointed to occipital involvement.	Operation over seat of injury, occipital area. Trephined over right sinus.	Glioma, left occipital lobe. Tumor, tempora-sphenoidal area.	Death from respiratory failure. Death from hemorrhage.
Keen, American Journal of Medical Sciences, 1891.	Tumor, occipital area.	Trephined behind parieto-occipital fissure.	Tumor top of occipital lobe.	Death in 14 hours.

*Reference Handbook Medical Sciences, Supplement, 1893.*

## SOME NOTES ON DISPENSARY WORK IN NERVOUS AND MENTAL DISEASES.\*

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In the twelve months of 1903 two thousand and thirty-eight patients applied for treatment at the Department of Nervous Diseases of the Vanderbilt Clinic. Of this number it was determined that 96—49 men, 47 women—did not suffer from any distinct nervous lesion and were referred to other departments. In 82 patients—71 men and 11 women—no definite diagnosis of nervous or mental disorder could be made at the time of application. This leaves a total of 1,860 nervous cases, of which 840 were males and 1,020 females.

The total number of visits made during the year was 10,630, making a general average of 5.6 visits per person. As has been mentioned in a report on the work of the clinic during 1902,<sup>1</sup> this does not represent a true average of the number of visits of each patient since many come only once. As a rule, however, the patients return with a regularity that is encouraging.

A rapid review of the number of patients who have come to the clinic since its opening in 1888 may be of interest, first, as showing the gradual increase in attendance as the facilities offered at the clinic became known to the free dispensary going public, and as further indicating the general average now reached and that may confidently be expected in the future. Furthermore the figures for the entire work of the clinic are appended as a basis for the consideration of the general proportion of nervous cases and all cases seen at the Vanderbilt Clinic. Whether the proportions here set forth hold true for the general mass of the public is not known, but further inquiries are in progress looking forward to the

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\*Report of Clinic of Dr. M. Allen Starr for the year 1903.

<sup>1</sup> "Work of a Neurological Dispensary Clinic." By Dr. Smith Ely Jelliffe and Dr. L. Pierce Clark (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, Aug., 1903).

ascertaining, if possible, of the general ratio of varieties of sickness to the general sick population. To further progress to the study of the ratio of all sickness to the entire population might be a very interesting statistical inquiry, but one which the present writer denies himself the thought of undertaking. Such an enumeration might well be taken up by our Charity Organization Societies as a scientific basis for the direction of some of their philanthropies. Perhaps this has been done, for some communities at all events.

During the years 1888-1903 the following number of new cases of patients with nervous disease are on record in the clinic and the total number of new cases for all diseases.\*

YEAR.	DISEASES OF NERVOUS SYSTEM.	ALL DISEASES IN CLINIC.	PROPORTION.
1888 (7 mos.)	732	13,330	5.5%
1889	1,273	29,723	4.3
1890	1,466	34,690	3.6
1891	1,677	35,715	4.7
1892	1,586	35,657	4.4
1893	1,897	39,569	4.8
1894	2,165	41,871	5.1
1895	2,402	46,444	5.1
1896	2,973	54,667	5.2
1897	2,567	51,413	4.9
1898	2,153	48,566	4.5
1899	2,052	48,742	4.2
1900	2,125	48,967	4.3
1901	2,223	47,156	4.7
1902	2,205	45,338	4.8
1903	2,006	44,378	4.5

From this table it may be seen that so far as the Vanderbilt Clinic is concerned the ratio of sickness referable to the nervous system varies from 4 to 5 per cent. of the entire sick clinic population.

From this percentage an attempt may be made to estimate the number of people sick with nervous diseases in the greater city of New York, restricted entirely to the dispensary class.

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\* I am indebted to Mr. J. V. Colgan of the Vanderbilt Clinic for these figures. It will be noted that small discrepancies are evident between his figures and our own case books. Those who are acquainted with clinic procedures understand the reasons for this, and hence they are not discussed here.



We find from the report of the Committee on Dispensaries of the State Board of Charities made to the State of New York in 1902, that for 1899, 1900 and 1901, 932,587, 876,070, and 871,993 people, respectively, were treated in the dispensaries of New York. Our percentage was 4.2 per cent. in 1899, or 39,169 people suffering from nervous diseases; in 1900, 37,671; in 1901, 40,975. If the number of visits be computed in accordance with the same statistics, from figures not here presented in their entirety, the following interesting totals may be arrived at: if the average of five visits per person be taken, this brings the totals up to 195,845, 188,355 and 204,875 visits, respectively. By no means a small economic loss to the physician aggregation. Whether this proportion will hold for the entire sick population outside of dispensary practice is a subject worthy of a statistician's labors. Such studies may have been prosecuted; I have not found the opportunity to seek for them. These figures, however, offer no help in the unravelling of the general sociological bearing of sickness. With these general remarks on the proportion of the prevalence of these diseases, we may profitably turn to the affections themselves.

With reference to the personnel of the clinic it is worth noting that the regular routine is done by about twelve assistants. Six of these attend on alternate days, three in the room for women and three in the room for men. Special treatment by massage and manipulation is given in the clinic on two afternoons in the week. Both clinical rooms are provided with full electrical apparatus and electrical treatment is administered during the two hours of the attendance of the clinical assistants—namely 2 to 4 P. M. every day save Sunday.<sup>3</sup>

*Mental Diseases.*—Following the order of a report of the work of the clinic in 1902, the patients received suffering from

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<sup>3</sup>Clinical Assistants in 1903.

Dr. Pearce Bailey, Chief of Clinic.

Chas. E. Atwood, M.D.

B. E. Krystall, M.D.

S. E. Jelliffe, M.D.

S. P. Goodheart, M.D.

L. M. Gibson, M.D.

E. L. Hunt, M.D.

C. M. Haviland, M.D.

L. P. Clark, M.D.

L. S. Manson, M.D.

H. R. Humphries, M.D.

Thomas P. Prout, M.D.

G. W. Todd, M.D.

some form of mental trouble were 196 in number, of which 150 were women and 46 men. Thus the number of mental patients comprised 10.5 per cent. of the entire nervous clinic.

The grades of mental deficiency were represented by six idiots and 69 imbeciles, a total of 75 patients with incidence of 4 per cent. Two cases of Sachs' Amaurotic Family Idiocy were diagnosed. This (4 per cent.) is one per cent. higher incidence than noted in 1902 and emphasizes with even greater force our comment at that time that the city is greatly in need of supplementary training schools for defective children. In view of the many difficult problems, the attempted solution of which is the function of the Board of Education, we hesitate to add another, but it is of much importance. There must be a large number of defectives if the experiences of the Vanderbilt Clinic are to be taken as representing an average.

Congenital speech defects, one only is recorded. Stammerers were few, twelve in all, three in women and nine in men.

It may be said in advance, with reference to the subject of the diagnosis of the psychoses, that as one swallow rarely makes a summer, so one or two examinations of a mental case rarely establish an exact diagnosis. Our diagnoses of mental changes, therefore, should be accepted in the most conventional of senses.

As in 1902, so in 1903, the insanities were not well represented. Naturally the more acute and violent manias, or those patients suffering a more acute form of manic-depressive insanity, are not liable to present themselves at a general clinic. One case of simple mania in a woman is recorded, while 17 patients with severe depression with hallucination, 13 women and four men, of a sufficiently severe grade to warrant a diagnosis of melancholia, as understood by older clinicians, came for diagnosis and treatment. None of these cases were of the recurring type so far as the histories could teach. Hypochondriasis is given as the diagnosis in five cases, two men and three women, but whether of neurasthenia, hysteria or of a distinctly defined psychosis does not appear.

Minor psychoses were not uncommon. The history of simple obsessional states of undetermined pathology was ob-

tained from one woman and two men. Puberty was the exciting cause in one case of a mild psychosis, pregnancy in one other, and the menopause seemed the element of disturbance in 28 women who presented some mild mental disturbance sufficient to cause anxiety either to themselves or their friends.

Of the degenerative types of insanity, dementia præcox was diagnosed nine times, four men, five women. In view of the varying interpretations given to this symptom-complex an unassailable diagnosis is not here contemplated. General paresis was present in its initial stage in 26 individuals, all men. This represents a percentage of over 1 per cent. This proportion if effective for the entire dispensary population would represent about 500 paretics a year in the greater city of New York. The State Commissioner in Lunacy reports the admission of 471 paretics into the hospitals for the State for 1902.<sup>4</sup> As emigration is a large factor in New York State this should be taken into consideration.<sup>5</sup>

Paranoid states were represented in seven patients. Five of these were women, two men. Nothing of note was observed in the history.

Senile dementia was not represented this year in the clinic statistics.

Habit psychoses or neuroses, such as chronic morphinism and chronic alcoholism, were present in three patients. One man, two women came for treatment of the opium habit, whereas there were 40 patients suffering from alcoholism *per se*, 39 men, one woman. Naturally the number of cases reporting for these habits represents a much diminished proportion of those addicted. Tea poisoning was diagnosed in five women.

*Nervous Diseases.*—Following the practice of a similar study made last year, this year's patients may be classified as 856 func-

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<sup>4</sup> In this connection it might be of interest to note the peculiar methods of computation in the statistical tables published in the Reports by the State Commission. Thus in 1900, 390 cases of paresis were admitted. Total since 1888, 4,128; next year this addition is made 4,552, instead of 4,524; etc. Other years show worse computations: 1902, for instance, 4,552 patients recorded, 424 admissions, with next year only 4,799 total instead of 4,976, an error of nearly 200.♦

<sup>5</sup>W. A. White. "Geographical Distribution of Insanity in the United States" (JOURNAL OF NERVOUS AND MENTAL DISEASE, May, 1903).



tional and 808 organic, using these words in a purely arbitrary sense, since we are personally opposed to the perpetuation of this mischievous, and yet at times useful differentiation.

Whether the neurasthenics that present themselves at a clinic for diseases of the nervous system are in reality psychasthenias or neurasthenias it is beyond the present statistical study to interpret. The writer's opinion is that most cases found in the dispensary clinic represent individuals of weak mental capacity, and are, properly speaking, psychasthenias, rather than neurasthenias of the strictly nerve-tire type. Neurasthenias of defective involution perhaps they may be, but neurasthenias of overwork they rarely are.

With this explanation of the standpoint maintained regarding the diagnosis and nosological position of this confused symptom-complex, the records show 364 patients with neurasthenia, of which 152 were women and 211 men. This represents an incidence of about 18 per cent., 5 per cent. less than represented in the statistics for 1902. Syphilis is put down as the exciting cause in six, alcoholism in one, trauma in two, typhoid in one, and sexual excesses in 45. No etiological factors are mentioned for the remainder.

A diagnosis of hysteria is given for 79 individuals, 76 women and three men. The minutiae of diagnosis for an exhaustive opinion are not available and hysteria is to be interpreted as was done in 1902. Major hysteria is not represented.

Convulsive disorders were present as follows: Epilepsy in 184, 101 females, 83 males. A résumé of the cases of epilepsy since the opening of the clinic to 1903 has been presented.<sup>6</sup>

Choreas were present in 182. The monthly incidence, or time of onset, of chorea, 135 cases of one hundred and fifty-four cases recorded in special book, is here appended:

January, 11; February, 13; March, 11; April, 11; May, 17; June, 14; July, 10; August, 16; September, 6; October, 10; November, 7; December, 9.

Tics were found in 21 patients, ten women and nine men

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<sup>6</sup> M. Allen Starr: "Is Epilepsy an Organic Disease?" (JOURNAL OF NERVOUS AND MENTAL DISEASE, March 1904).

suffering from ordinary tic; two of tic convulsif. Spasmodic torticollis present in four women, one man.

Paralysis agitans was present in 12 men and nine women, 21 in all. The usual types were represented. Ages of onset of those recorded at clinic, 60, 52, 63, 48, 67, 50, 36, 34, 59, 58, 55, 48, 57, 40, 59. No anomalous cases, unless those of low age, are on record this year.<sup>7</sup>

*Organic Lesions.*—Peripheral Nerves. These were affected in some manner or other in 140 women and 193 men, 333 in all, of which neuralgia and neuritis constituted the majority.

Neuralgia was found in 114 patients (6 per cent.), of which 65 were women and 49 men. In its distribution it was facial in 28 women and 12 men. In four women and one man the neuralgia was occipital. The sciatic nerve was involved in 8 women and in 28 men. Other distributions were as follows: Supraorbital, three men, six women; dental, seven men, six women; brachial, eight men, one woman; arthritic, ten; anterior crural, one; peroneal, two; lumbar, four; and general, seven. Six of the cases are classed as traumatic neuralgia and one as malarial.

Inasmuch as the differentiation between neuralgia and neuritis is not sharply made in the dispensary the two affections might be included under one head. We prefer, however, to follow the usage of the clinic in the past. In this sense neuritis was diagnosed in 61 cases, 26 women and 35 men. The types were: Alcoholic, ten; occupation, three; general, one; lead, four; arthritic, one; typhoid, two; malarial, two; grip, one; tea, one; multiple, eight; wounds, one; gas poisoning, one; there was optic neuritis in one case, musculo-spiral in two; circumflex, three; anterior crural, ten.

Peripheral palsies were present in 86 patients. As before stated these might be classed under neuritis but they are here kept apart as representing the severer grades of peripheral motor neuronie involvement.

Erb's pressure syndrome was present in 20 cases. Facial paralysis occurred in 14 men and 21 women, showing, as did

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<sup>7</sup> For a complete analysis of all cases in clinic since 1888, see S. Hart, JOURNAL OF NERVOUS AND MENTAL DISEASE, March, 1904, Vol. 31, pp. 177-188.

the figures last year, a greater incidence for the female sex. Trauma was responsible for most of these palsies, the ulnar nerve being implicated in three, brachial in four, musculo-spiral in 21, anterior tibial in one, median in one, external rectus in one.

The active cooperation of the department of children's diseases is responsible for the large increase in the number of cases of Erb's palsy seen by the members of the neurological department.

An affection of the anterior horns of the spinal cord was diagnosed in 21 cases, acute anterior poliomyelitis.

Three cases of chronic anterior poliomyelitis. These latter were progressive muscular atrophies of the usual type. There were no cases of high anterior poliomyelitis.

The system diseases of the spinal cord were comparatively numerous.

Tabes dorsalis was diagnosed in 31 men and four women, 35 in all.

There were no cases of Friedreich's disease at the clinic this year; Little's disease was present in one female patient; Lateral Sclerosis in six men; Amyotrophic Lateral Sclerosis in one. Multiple Sclerosis was present in 12 men and four women, 16 in all.<sup>s</sup> Syringomyelia in one woman.

<sup>s</sup>Nos. 6153, 6687, 6719, 6739, 6841, 7173, 7745, 7891, 7919, 8259, 8277, 8295, 8470, 8704, 8878, 7354.

Myelitis was present in six men and one woman, the latter being due to Pott's disease.

Spinal tumors were present in three men and one woman.

*Brain Affections.*—Organic affection of the brain was present in 133 patients. Hemiplegia was present in 45 men and 25 women, 70 cases. Monoplegia in one man. Cerebral palsies of children were diagnosed in 32 instances. Aphasia was present in two cases, one motor and one amnesic. One patient with agraphia was seen. Tumor of the brain was thought to be present in one woman. Fracture of the skull was diagnosed in three cases. Suppurative meningitis in one and pachymeningitis chronica in one. Hemianopsia was present in two cases, hemiparesthesia in two, hemiparesis in three. Cerebral and cerebrospinal syphilis were diagnosed in



six cases; cerebral thrombosis in two; concussion, four; abscess, two.

*Muscular Diseases.*—Pseudohypertrophy, two; myasthenia gravis, one.

*Miscellany.*—Raynaud, one; Erythromelalgia, one; Senility, two; Sleeplessness, seven; Tremor, eight; Tea Poisoning, four; Dermographism, one; Endarteritis or Arteriosclerosis, 17; Headache, nine men and 36 women; Migraine, nine; Mercurial poisoning, one; Alcoholism, 40; Angioneurotic Edema, one; Arteriospasm, one; Exophthalmic Goiter, one man and five women; Acroparesthesia, nine; Night Terrors, four; and Deaf Mutes, two.

## REPORT OF TWO CASES OF MENINGEAL TUMOR TREATED BY LIGATURE OF THEIR VESSELS.

BY ARTHUR CONKLIN BRUSH, M.D., OF NEW YORK,

NEUROLOGIST TO THE KINGS COUNTY, BROOKLYN EYE AND EAR, WILLIAMSBURG  
HOSPITALS, ST. GILES HOME, AND BUSHWICK AND EAST  
BROOKLYN DISPENSARY.

*Case 1.*—Male. Aged 18. Admitted to the Kings County Hospital April 16, 1902. Family and previous personal history negative. About March 1, 1902, he began to suffer from headaches, vertigo and vomiting, and on March 9th, for several hours, he suffered from clonic spasms, involving the muscles of the left side of the face and left limbs. This was followed by permanent loss of power in his left arm. These convulsive attacks were repeated several times a day since.

Examination showed loss of power in the left hand, forearm and arm, increased left elbow and wrist jerks, deviation of the tongue to the right, and pain referred to the right parietal region and right half of the body and right limbs. Mentally he was dull and apathetic.

A diagnosis of a cortical tumor, situated in the face and arm centers on the right side of the brain, was made.

On May 1, 1902, he was trephined in this region by Dr. C. F. Barber, and in the center of the opening imbedded in the pia mater, a hard, dark-red growth, one by one and a half inches, was found. All the vessels supplying this growth were tied, and the wound closed. This was followed by paralysis of the left extensor digitorum, which disappeared at the end of six weeks.

During the past year there has been no return of the convulsions, headache, vertigo or pains; but the loss of power in the left arm has not improved.

*Case 2.*—Female. Aged 16.—Admitted to the Kings County Hospital April 26, 1902. Seven years before admission she began to have, several times a day, slight general clonic spasms, with no apparent loss of consciousness, and during the past two years these have become more frequent and violent. These are

preceded by a peculiar feeling in the left leg, and are followed by a temporary flaccid paralysis of the left limbs.

Examination showed that she habitually leaned to the left in sitting, staggered to the left in walking, and that there was a partial flaccid left hemiplegia, with loss of left elbow and knee jerks.

A diagnosis of a cortical tumor situated on the right side of the brain, in the region of the leg center, was made.

On May 28 she was trephined in this region by Dr. C. F. Barber, and a similar growth to that in the first case was found. It was treated in the same way and with the result that the fits have not recurred since, but the hemiplegia has remained unimproved.

Ligature of the nutrient vessels of neoplasms is of course not a new surgical procedure, and has been employed in many parts of the body, but, as far as I have been able to ascertain, has not been employed for those of the brain.

Our reasons for employing this method in these two cases were that in our former operations on similar growths, the removal of the tumor has caused so much damage to the cortex that it has resulted in more or less permanent paralysis in the parts supplied by the affected centers. This the patient as a rule considers a worse condition than the convulsions. Tumors of the cortex are exceptionally favorable ones for the adoption of this procedure, from the anatomical fact that the blood-vessels of the cortex pass from the surface inward, and it is thus quite easy to cut off the blood supply from growths situated as these were. Again the tying of the vessels of the tumor itself, of course, does no damage to the adjacent cortex, and in our cases did not seem in any way to interfere with its blood supply. Of course it is as yet too early to report these cases as permanent cures, but they certainly compare favorably with those of a similar character in which extirpation has been performed.



## THE INFLUENCE OF FEVER ON THE PAINS OF LOCOMOTOR ATAXIA.

BY CHARLES W. BURR, M.D., OF PHILADELPHIA,

PROFESSOR OF MENTAL DISEASES IN THE UNIVERSITY OF PENNSYLVANIA.

I know of no observations concerning the effect of intercurrent febrile diseases upon the pains occurring in locomotor ataxia. My own data are not extensive enough to use to draw positive conclusions as to whether any febrile disease always influences these pains, either by increasing or diminishing them, nor to explain the process by which the fever acts. The subject is, however, of enough importance to merit consideration. My attention was first called to the matter by the great increase in the severity of the pains of an ataxic during an intercurrent attack of malarial fever. The patient was syphilitic and alcoholic. His illness had begun several years before his admission to the Philadelphia Hospital with not very severe shooting pains confined to the legs, followed after many months by a staggering gait. When examined he presented marked ataxia of motion and station, absent knee-jerks, Argyll-Robertson pupils, Charcot joints in either knee, and areas of anesthesia in either leg. He did not give a history of, nor exhibit during his stay in the hospital, gastric or other crises. In May, 1897, he was suddenly seized with a chill, followed by fever, sweat, and a fall of temperature to normal. The attacks occurred daily for five days, the temperature rising every afternoon to 104 F. and falling a few hours later to normal. From the beginning of each chill until the temperature began to fall he complained bitterly of violent lancinating pains in the legs. At no other time during his stay in the hospital, a period of many months, did he exhibit any such evidence of pain. He himself said that he had never felt such. On the fourth day his blood was examined and the malarial organism found. Quinine was given in rather large doses, and after the fifth day the chills ceased, fever did not return, and the severe pains stopped. Several years later another patient at the Philadelphia Hospital underwent a similar experience. His also was a clear-cut case of locomotor ataxia. He had been in the hos-

pital several weeks when he suddenly was seized with a chill with fever. He had three chills on alternate days, the temperature rising during two to 105 F. and in one to 104 F. During each attack, from the beginning of the chill until there was a distinct fall in the temperature, he complained of great pain shooting through the arms and legs. (In this man the ordinary ataxic pains, which were not severe, involved not only the legs, but the arms also.) On the sixth day Dr. C. Y. White found malarial organisms in the blood. Quinine was given, the chills and fever ceased, and the pains resumed their usual character.

About a year ago a gentleman who had had locomotor ataxia for some years, and in whom the disease had progressed very slowly, but who always suffered greatly for some hours before a storm, and only then from pains in the legs and left intercostal muscles, and who usually was relieved as soon as the storm broke, gave himself a deep hypodermic injection of morphia. He was relieved, but two days later fever appeared and with it terrific pain. At first I was at a loss to discover the cause of the fever. The temperature chart was that of acute pus poisoning. In a few days he told me of the hypodermic injection, and said there was a very sore and sensitive spot on one thigh. On examination a large abscess burrowing deeply was found. A surgeon opened it, poulticed it, and after two weeks the wound healed and the fever ceased. During the entire time that the fever lasted, not only when the temperature was high, but also in the intermissions, the patient suffered excruciating lancinating pains in the legs and left intercostal muscles. Never before or since has he so suffered for so long a time. As a rule his attacks lasted only a few hours. I believe, therefore, that the increase of pain was caused by the septicemia.

Another case was that of an old woman whose cord disease was complicated by epithelioma of the cervix, vagina and bladder, the latter arising several years after her admission to the hospital. For six or seven years she had had marked but not severe ataxic pain. The ataxia was so great that she could not walk or even stand, nor could she feed herself. Argyll-Robertson pupil was present, and there was gray degeneration of both optic nerves. The knee-jerks were abolished. She had no gastric nor other crises. Sensibility to touch was preserved in

the hands. Some months before her death she began to complain of difficulty in micturition, which at first was thought to be due to her spinal disease, then of uterine symptoms and later to emaciate. Not long after an irregular see-saw fever developed. The temperature ranged irregularly from 97 F. to 105 F. She had irregularly recurring chills, and during each chill complained bitterly of shooting pains. Her blood showed nothing. The only lesions found at necropsy other than the posterior sclerosis and the epithelioma were chronic interstitial nephritis and an area of old healed tuberculosis in one lung. The fever evidently was septic and secondary to the malignant disease.

These are the only cases I can recall, and of which I have notes, in which fever from any cause has been associated with an increase of pain. I have seen quite a large number of patients die from febrile affections accompanied with chills, in whom the fever was not associated with pain; but they were all, so far as I remember, people in whom pain had ceased to be a symptom years before. In such circumstances fever would not be expected to cause pain. Fever in general is surely not provocative of tabetic pains; at least my personal experience is against such an opinion. I have studied quite a number of patients who, while still subject to pain, developed pulmonary phthisis or cystitis, with a consequent pyelo-nephritis, and in none was there any increase in the severity of the characteristic pain. In two cases of facial erysipelas with quite marked fever there was no pain. It would seem as if only in those diseases in which chills are associated with fever is there any increase in the ataxic pain. It scarcely needs to be mentioned that fever is not a symptom of locomotor ataxia. Dr. W. H. Riley (*JOURNAL OF NERVOUS AND MENTAL DISEASE*, Sept., 1898), however, found a rise in the temperature during paroxysms of pain in six out of sixty-one cases. He gives neither the cause nor the height of the fever. Bramwell, on the other hand (*Brain*, Part I., 1902) in a study of the temperature of twenty-five cases over a period of twelve days, found fever absent in all except one, who was suffering from influenza. It is not stated whether any of these had paroxysms of pain during the investigation. Two writers, Pell and Oppler, regard "febrile crises" as part of the symptomatology of locomotor ataxia. P. K. Pell (*Berliner klin. Wochenschr.*, June 26, 1896)



reported a case in which the attacks were characterized by great pain in the extremities, high fever, and vomiting lasting one day, chill, and sweat followed by herpes labialis. In one attack the eyes were red and inflamed. He regarded the attacks as being similar to gastric and other crises and offered in explanation of their causation periodic discharge of certain nerve centers in consequence of chemical irritation. In 1902 Dr. Bruno Oppler (*Berliner klin. Wochenschr.*, April 14th) accepted the reality of the occurrence of febrile crises and reported a case in which it was claimed that gastric crises were replaced by them. The attacks were characterized by weakness and fever lasting one day and recurring every six or eight weeks. They were not associated with herpes of the lips. Malarial fever was excluded. Oppler was undecided whether the crises were due to central irritation of the temperature centers or to absorption of toxic matters caused by the suppression of the gastric crises. These are the only papers on the subject I have been able to find, and it would seem that on account of the rarity of the condition it would be justifiable to regard it as a complication rather than as a symptom of locomotor ataxia. Herpes labialis occurs in locomotor ataxia occasionally, but not with sufficient frequency to cause it to be regarded as part of the disease.

## Society Proceedings

### PHILADELPHIA NEUROLOGICAL SOCIETY.

December 22, 1903.

The President, Dr. H. A. Hare, in the chair.

*Paralysis of the Ulnar Nerve Following a Severe Attack of Typhoid Fever.*—This case was presented by Dr. James Hendrie Lloyd. The patient, a young man, aged 29 years, was admitted to the hospital under the care of Dr. T. L. Coley, in May last, with a severe attack of typhoid fever. Hyperpyrexia and great prostration were marked features of the attack. There were also several alarming hemorrhages from the bowel. The duration of the attack, including a relapse, was nine weeks. Dr. Lloyd had first seen the case in consultation when it was at its worst. The highest temperature reached was 106.2°. For fourteen hours it was continuously above 105°, and not influenced by sponging. The treatment consisted of cold baths, sponging, and alcohol. Several weeks after the patient's discharge it was noticed that he had paralysis of the right ulnar nerve. He states that he had noticed weakness in the hand before he left the hospital.

Dr. William G. Spiller said that he had observed external popliteal nerve palsy in a man who was said to have had typhoid fever. This statement could not be substantiated. He also had tuberculosis. No cause could be found for this palsy. If it had been caused by tuberculosis, it would have been as unusual as from typhoid fever. Dr. Spiller thought that these isolated palsies, occurring in or following after an infectious disease, are the result of more than one cause. In some cases they may be produced by alcohol. Possibly some are due to pressure. The patient being unconscious, parts may be subjected to pressure without the knowledge of the patient or nurse. In such a case a pressure which in a healthy individual would have no effect may produce an isolated palsy.

Dr. F. Savary Pearce thought that in these cases of paralysis occurring in typhoid fever and in other diseases, it will be found that pressure as well as the infectious disease has something to do with the condition. The ulnar nerves would be particularly liable to pressure from the position of the arms as the patient lay in bed.

Dr. James Hendrie Lloyd said that 18 cases of paralysis of the ulnar nerve following typhoid fever had been reported. He believed that in these cases the palsy was due to an injury, just how produced he was not prepared to say. In the present case the man was profoundly poisoned and his resistance diminished, and in some way by handling or by pressure while he was lying unconscious the nerve was injured. He did not consider it likely that the typhoid fever poison would pick out one ulnar nerve trunk.

*Syngomyelia.*—This patient was shown by Dr. J. H. W. Rhein.

*Tetany as a Complication of Gastric Disease.*—Dr. Joseph Sailer read this paper. The patient, a woman aged 43 years, had suffered from symptoms of gastric trouble for four years,—loss of appetite, constipation, pain in the stomach after meals and occasional vomiting, but no vomiting of blood. Physical examination showed dilatation of the stomach. Three

weeks after the patient came under observation she had an attack of violent pain in the stomach with a feeling of pins and needles in the arms. There were violent cramps in both the hands, with the fingers grouped together in a state of tonic spasm. Inhalation of chloroform gave no relief, but half a grain of morphia hypodermically relaxed the spasm. The following morning she had a similar attack lasting forty minutes.

The diagnosis was contraction of the pylorus following ulcer. Operation was suggested, but the patient left the hospital and all trace of her has been lost.

*The Pathology of Dementia Præcox.*—This paper was read by Dr. William R. Dunton, by invitation.

Dr. Charles K. Mills said that the matter of the pathology of dementia præcox was of great practical importance. He thought that it would be of interest in this connection to have comparative studies of certain large areas, as for instance, the anterior and posterior association areas of Flechsig—the higher psychic and the lower (concrete concept) psychic areas of the speaker, and to make a comparison of these findings with the findings in the sensory and motor projection systems—a study similar to that made by Schaffer in regard to general paresis.

Dr. William G. Spiller asked whether or not Dr. Dunton considered that there was anything in his findings peculiar to dementia præcox. For himself he had come to believe that there is very little pathology of mental affections outside of parietic dementia, that is peculiar to the mental disease. Changes have been found by many investigators, but so far as he knew there was nothing peculiar to any one mental disease, and he was not aware that anyone could make a positive diagnosis of the disease from the pathological findings alone.

Dr. Charles W. Burr suggested that possibly the lesions found might have had nothing to do with the mental disease, but may have been produced by the disease causing death. The patient had been ill for four or five years, and these lesions were at the most slight, so that it was probable that there had been symptoms before there were any lesions. If these changes have any relation with the symptomatology, they indicate not what the disease was, but where the poison, if there were a poison, acted.

He agreed with Dr. Spiller that it was very probable that there was no morbid anatomy of insanity outside of general paralysis of the insane. The explanation of this in his opinion was that instead of there being insanities there was insanity. We cannot by our examination of the brain say that one man died of one form of insanity and another of another.

Dr. William Pickett said that he had been much interested in the pathological findings in dementia præcox. After referring to the work of the earlier writers on this subject, he remarked that if under the head of dementia præcox is included not only the simple type hebephrenia but also catatonic and paranoid types, it is evident that a definite pathological anatomy is almost out of the question. Yet he believed from his own observation and study that dementia præcox is an entity.

In considering Meynert's theory that mania is due to a vaso-motor dilatation, and melancholia to the reverse condition, it occurred to him that if there were a definite pathology for any insanity, we should expect to find it in mania, if Meynert's theory were correct; this hyperemia continuing for months would be expected to cause changes in the brain tissue. Dementia præcox is characterized by the indefiniteness, the superficiality, and the changefulness of all the mental symptoms, as compared with those of black mania or melancholia. If, as is well known, there are in mania and melancholia, no definite changes, how much less would we expect to find them in this disease in which the mental symptoms as regards intensity are so slight.

Dr. Alfred Gordon thought that the time had come when we must



accept the view that there is no such thing as a pathology of mental disease except in general paralysis of the insane. Pathology has shown that very little should be expected from it in determining the cause of insanity. He believed that the investigations should be conducted in different lines. The toxins and antitoxines and the physiological and pathological metabolism occurring in the system are the subjects to which the mind should be directed in searching for the cause of insanity.

Dr. Joseph Sailer remarked that the microscopical sections shown were especially interesting because they agreed so well with the changes which had been found in a variety of other conditions, some curable and some incurable. Especially do they agree with the changes which have been found as the result of experimental intoxication in animals.

He also called attention to the fact that there is a pathology of the central nervous system in connection with starvation.

Dr. William R. Dunton, in closing the discussion, expressed his belief that in time we should come to a definite pathology of the nervous system. The changes which he had described he thought were at least suggestive. The suggestion that these changes are due to auto-intoxication had been made by other writers. In the first case that he had reported the duration was much less than in the present case (about three years), the patient dying of tuberculosis. In that case the changes were much more marked, but the degree of dementia was much more extreme.

*Two Cases of Multiple Sclerosis with Necropsy.*—This paper was read by Dr. William G. Spiller and Dr. C. D. Camp.

Dr. D. J. McCarthy remarked that a similar symmetrical arrangement of sclerotic patches had been called attention to before. In a case examined by Dr. Burr and himself this had been very distinct. Some sections of the cord could have been mistaken for postero-lateral sclerosis.

Dr. Spiller replied that he had examined the sections from many cases of multiple sclerosis, but had never before seen the remarkable symmetry extending throughout the spinal cord that was present in one of the cases reported by Dr. Camp and himself.

*A Contribution to the Study of Rhizomelic Spondylosis, with the Report of Three Cases.*—This paper was read by Dr. A. Gordon.

Dr. D. J. McCarthy said that in reporting a case of spondylitis confined to the spinal cord some four years ago he had looked up the subject and had been forced to the conclusion that these irregular types are simply manifestations of rheumatoid arthritis. This disease may begin without any rheumatic manifestations.

Dr. C. L. Allen referred to a case which he had seen some years ago, occurring in an old soldier, 80 years of age. The attack began apparently as an acute rheumatism affecting an ankle joint. A year later the man got a very stiff neck and apparently the cervical portion of the spine became ankylosed. Later he developed root symptoms with anesthesia over the occipital nerve and in one arm, with Dupuytren's contraction in one hand. Dr. Allen considered the case as one of probable rhizomelic spondylosis.

*Brain Tumor.*—This specimen was exhibited by Dr. Moses Behrend.

The tumor had been removed by Dr. W. W. Keen. The first symptoms complained of were those of weakness occurring eight months ago. Six weeks ago there was an attack of dizziness without unconsciousness, but associated with paralysis of the left side of the body. The next day power was recovered. The patient also had monospasm, beginning in the arm and later extending to the leg. The growth involved the right Rolandic region. The tumor was localized and the site of operation fixed by Dr. Chas. K. Mills.

## NEW YORK NEUROLOGICAL SOCIETY.

January 5, 1904.

The President, Dr. Pearce Bailey, in the chair.

*Ptosis Relieved by operation.*—Dr. B. Sachs presented a young man who had been under his observation for a number of years. He had been apparently well until about ten years ago, when he had an apoplectiform seizure, which resulted in double ptosis and palsy of all of the ocular muscles. There was some recovery, but at the present time there was almost complete paralysis of both recti externi, and the up and down motions were still considerably restricted. The rectus externus of the left side had recovered most. The lesion was evidently in the vicinity of the aqueduct of Sylvius, involving not only the third nerve but the sixth and fourth nerves. For many years this man had had a very persistent tachycardia, and it was assumed that he had had a chronic endocarditis, and that an embolus had passed into the basilar artery. Quite recently another possibility had arisen, i.e., Dr. A. Wiener had found what he considered to be a specific lesion of the fundus. Possibly, therefore, the original condition was a thrombosis resulting in considerable softening. The speaker said that after a certain length of time, when the ordinary therapeutic procedures had failed to bring about a favorable result, it was proper to resort to surgical means for relieving the ptosis.

Dr. Alfred Wiener, supplementing Dr. Sachs' report, said that before the operation, which he had done, the left eyelid hung down to the full extent. The operation done was that known as the Hess operation. An incision was made along the brow, the skin was dissected away and three deep sutures were inserted so as to practically attach the lid to the frontalis muscle. There had been no sacrifice of tissue, and the natural folds of the lid had been preserved. There were a number of pigment spots on the periphery of the retina, a condition often found in young children suffering from hereditary syphilis. It was extremely probable, therefore, that this man was suffering from hereditary syphilis.

Dr. W. M. Leszynsky said that if the man had a ptosis and a paralysis of the third nerve, and the operation were done, and there was diplopia, the resulting condition would be worse than before the operation.

Dr. Sachs said that he had intended to emphasize the point that if there were a diplopia, other ocular muscles should be cut hereafter and a proper equilibrium of the muscles restored. He had had this done in a number of stubborn syphilitic cases, at the suggestion of an ophthalmologist, and the results had been very satisfactory. He would, therefore, recommend the operation not only in ptosis but in any ocular palsy of long standing.

*Post-Diphtheritic Hemiplegia, Probably of Neural Origin.*—Dr. Joseph Collins presented a boy of nine years with paralysis and contracture of the left hand and foot. He had first seen the patient at the request of a surgeon, who suspected a tumor of the cortical motor area. The history was that, two and a half years ago, the child had a severe attack of diphtheria, for which antitoxin was administered on the fourth day. A week later the child was very weak, and his hands, feet and face were swollen. About three weeks after the onset of the disease he began to walk, and then it was noticed that the left foot dragged. A day or two later the left hand was observed to be weak. A week or so after that the left angle of the mouth was seen to be drawn up. Oftentimes on attempting to swallow fluids, they regurgitated through the nose. The

mother did not recall the boy's having had choking spells on swallowing. Between two and three months after the onset of the paralysis the hand and forearm began to flex and the hand to abduct, so that the elbow stood out from the body further than the shoulder. The hand became tightly clutched and gradually drew up until it was held behind the head. This condition lasted about a year. During this time the endeavor was made to overcome this position of the hand by making him carry a weight in it and by using a Whitely exerciser. About eighteen months after the onset of the paralysis the hand became straight, but the condition of the foot remained such that when he attempted to put on a shoe he had to wait until the toes became extended, and if the shoe were not slipped on immediately at that moment, he might have to wait half an hour before the flexor contraction or spasm would again relax. He never complained of pain. He attended school during this time, and was always bright in his studies. On admission to the Hospital for Ruptured and Crippled on October 23, 1902, he walked with a limp on the left side, the foot being held in position of marked equinus and slight varus; the left hand was held rigid, with the fingers extended, and the posterior muscles of the leg were in rigid contraction. The toes were flexed. The equinus could be overcome by force. There was slight atrophy of the muscles of the leg, but no paralysis. The left hand was in over-extension, but there was no barrier to flexion. On October 28, the astragalo-scaploid articulation was exposed, and a wedge of bone and cartilage was taken from the adjacent surfaces. The flexor longus hallucis was exposed and cut, the proximal end was drawn down and passed through the scaphoid and sutured to itself and adjacent periosteum. The anterior tibial was cut and shortened, and a tenotomy of the tendo Achillis was made. The foot was put up in valgus position in plaster of Paris. On November 15, 1902, the hand was put up in plaster in a flexed position. On December 13, 1902, when the plaster was removed from the hand, there was marked flexion with slight flexion of the fingers. On January 21, 1903, it was noted that the hand was in extreme flexion. At present, the boy was apparently in good health except for the deformity of his left extremities. His ability to walk, run and jump was limited only by the flexed position of the foot. He stood on either foot equally well. There was no paralysis of the muscles of the hip. The fingers, hand, forearm and arm were in a state of flexion, and the fingers and hand inclined to extreme flexion. This contracture could be overcome by the examiner. The knee-jerks were present on both sides and equal. There was no tenderness on pressure over the nerves, nor were there any sensory disturbances. There was no atrophy. There was partial reaction of degeneration in the muscles and nerves of the extensors of the forearm and foot and of the peroneal muscles. There were none of the stigmata of hysteria unless the contracture might be considered such. The case was diagnosed as one of post-diphtheritic neuritis resulting in contracture and faulty attitude simulating hemiplegia. That there might be a hysterical element in it the speaker did not deny.

Dr. Joseph Frankel called attention to the curious and irregular behavior of the symptoms, and the absence of organic phenomena. The change in electrical reaction might be explained by the clonic state of the muscles. He was inclined to believe that this was a functional disorder.

Dr. Leszynsky said he had carefully examined this boy previously. According to the history that he had obtained, this peculiar attitude took place very rapidly. He had been impressed with the fact that, on entering the hospital, there was complete extension of the wrist and hand, and that after the hand had been placed in forcible flexion it had remained in



that attitude, whereas formerly it had been extension. According to the history, the extension took place quite early.

Dr. Sachs said that from a very large experience that he had had with infantile cerebral palsy he would not hesitate at all to say that this was a case of that kind. He pointed out that infantile cerebral palsy did occur after diphtheria. The boy had a hemiplegia which was entirely typical, and there were contractures just as in other cases of hemiplegia. There were athetoid movements of a most pronounced character. If, with the eyes closed, the boy was asked to grasp one's hand firmly with the well hand, the affected hand would at once go into the athetoid position. He could not recall ever having seen this condition in hysteria or neuritis. The leg had recovered very much more than the arm. He would not deny the possibility also of a neuritis, but the infantile palsy was a primary condition. He could not believe that any neuritis would give rise to the condition found in the leg. He would like to know if any one present had ever seen athetoid movements with peripheral neuritis. There was probably a post-diphtheritic encephalitis as the original cause.

Dr. C. L. Dana said he was very glad to hear this positive opinion expressed because he had arrived at the same conclusion from a rather hasty examination of the child. To him a condition very characteristic of cerebral hemiplegia was present in the face.

Dr. Pearce Bailey said that the history of the case did not point very distinctly to a post-diphtheritic paresis, and such a distinctly hemiplegic character would be unusual for a neuritis. The weight of evidence seemed to point to a post-diphtheritic cerebral hemiplegia.

Dr. Collins said he did not know of any hemiplegia of organic origin that entirely spared the upper part of one extremity. There was some involvement of the face and an inability to wink with the left eye, but a large number of people were unable to wink with one or the other eye who had never had hemiplegia. The fact that one hand underwent extension while the other clutched, did not seem to him to have any significance, because he had frequently tried this in persons who had no hemiplegia.

*Two Cases of Congenital Cyst of the Fourth Ventricle Associated with Brain Tumor.*—Dr. J. Ramsay Hunt reported these cases, presenting photographs and specimens. He said that both cases were examples of brain tumor in young subjects, occupying the left optic thalamus and the right crus cerebri respectively. In addition, the fourth ventricle in both cases contained a large cyst, primarily attached to its floor, penetrating into the substance of the pons, coursing through its structures and terminating in immediate structural relation with the tumor. The clinical course of the disease in both cases was typical of brain tumor, and permitted the correct localization of the growth. Antedating the symptoms of brain tumor no central symptoms or mental defect was obtainable. In the second case the patient was said to have been subject to headaches with attacks of vertigo and nausea. The first patient was a boy of seven, who developed general symptoms of brain tumor with right hemiparesis and right hemiataxia. There was paralysis of the right side of the face with paresis of the left external rectus and with nystagmus. Hearing was impaired on the right. The second patient was a boy of seventeen who, six weeks after a fall on the occiput, developed the general and focal symptoms of brain tumor in the right crus cerebri. Weber's syndrome was present. On exposing the fourth ventricle, at the autopsy, a large cyst was found there in both cases, firmly attached to the floor of this ventricle. By serial sections he had demonstrated that in both cases the cyst dipped down in the pons, coursed forward and was in immediate structural relation with the tumor in both cases. There was nothing in the walls of these cysts to suggest a parasitic origin, while there was much to point to a congenital origin. The fre-

quency of glioma in this locality was well known. The co-existence of a tumor formation still further supported the view already expressed. These cases were unique in his pathological experience, and he had been unable to find their counterpart in the literature.

*A Case of Primary Sclerosis of the Posterior Columns followed by a Disseminated Softening of the Other White Columns.*—Dr. Joseph Collins presented this report. The clinical picture, he said, was so typical that the diagnosis was made during life. The patient was a house-painter, forty-two years of age, whose only previous illness had been severe attacks of colic. There was no history of syphilis, gonorrhea or the excessive use of alcohol. In 1900 he began to complain of trembling and stiffness of the hands, associated with intense paresthesia. Later on, there was pain in the back. During the following year his principal complaints were manual paresthesia and general weakness. There was no desire for sexual intercourse. All this time he was under treatment for chronic lead poisoning. In January, 1902, he rapidly became paraplegic, and since then had been bedridden. He was admitted to the City Hospital in March, 1902, and when first examined by Dr. Collins, on April 11, the man appeared to be suffering from Bright's disease. He could move the lower extremities slowly; there were knee-jerks present on both sides. The Babinski reflex could also be elicited on both sides. Tactile sensibility was impaired over the lower extremities. Thermal sensibility was preserved, but was slow below the knee. Pain sensibility was preserved. Deep sensibility was lost. There was prompt response to the faradic current. The pupils were equal and responsive. Bedsores were developing over the sacrum. The blood examination showed a predominance of small mononuclear cells and there was only 65 per cent. of hemoglobin. On April 27, it was noted that there was complete flaccid paraplegia; the left lower extremity was edematous; there was incontinence of urine and feces. He refused to take food up to the time of his death. The autopsy was made twenty-four hours after death. The brain and spinal cord showed no marked abnormality to the naked eye. The spinal cord was prepared in the usual way, and showed two distinct sets of lesions, sclerosis and softening. The areas of softening appeared to be very recent. In general, they involved the columns of Burdach, the postero-lateral portions of the crossed pyramidal tract and the cerebellar tract. The oblongata, pons and motor cortex were normal. The sclerosis appeared to be a primary one following pretty closely the system of fibres in Goll's tract. No thrombi or pathological changes of the blood vessels were found, and the blood examined showed this fluid to be fairly normal. The genesis of the softening was still obscure.

Dr. C. L. Dana said that this description followed closely those of cases of combined degeneration of the spinal cord with terminal softening. He did not quite understand whether the reporter put his case in this group, yet, to his mind, the case corresponded very closely with typical cases of that kind, a considerable number of which it has been his fortune to observe. Sometimes these cases were associated with a pernicious anemia; sometimes there was a severe primary anemia, while at other times there was no anemia at all. It was unfortunate that neurologists had not as yet agreed upon a name for this affection. The most common name was combined degeneration of the spinal cord associated with toxic states. The pathological conditions reported in this paper were very similar to those already reported. It was only in the minority of cases that there were areas of terminal softening. He was not prepared to admit that there were two distinct processes going on in the spinal cord. The disease began slowly, affecting by preference spots in the posterior columns, and subsequently the lateral columns. If the patient's condition was bad at this time, an acute process developed, but

probably essentially of the same nature. The etiology of the toxic condition was as yet unfortunately involved in obscurity.

Dr. Collins said that his case was reported as one of primary sclerosis of the columns of Goll with secondary softening in the other white columns, the paper being entitled "A Study of Subacute Sclerosis of the Spinal Cord of Toxic Origin." His case differed materially from those reported by Drs. Dana and Putnam in that the sclerosis was sharply and completely limited to the columns of Goll. In the other cases the sclerosis predominated in the posterior columns and in the crossed pyramidal tract, and this accorded in the main with the clinical history. The fact that his patient had suffered severely from lead poisoning and had subsequently developed a cachexia seemed to throw a little light on the etiology.

*Lymphocytosis of the Cerebrospinal Fluid.*—Dr. Joseph Fraenkel read a paper on this topic. He said that he had endeavored to study this subject in 47 cases, but in 14 of these the tappings had failed to give any cerebrospinal fluid. There were 7 cases of tabes, all of long duration, and all of these cases showed marked increase of lymphocytosis. Six out of seven cases of multiple sclerosis showed lymphocytosis. The tapping was done upon the patient in the sitting posture, preferably between the third and fourth lumbar vertebrae, or at the level of the iliac crests. From 5 to 8 cc. of the fluid were collected for each examination, and then centrifuged. The tappings were made under chloride of ethyl spray. In some of the cases headache and nausea followed lumbar puncture, but they were usually overcome by saline injections.

Dr. Sachs said that in the two cases in which lumbar puncture had been tried by him in order to distinguish between pseudotabes and tabes the examination proved entirely negative and of no diagnostic value. Hitherto the reports on this subject had been discouraging because of their contradictions. Lumbar puncture should never be attempted whenever there was a possibility of the existence of a cerebellar neoplasm, as several instances of sudden death following this procedure in such cases had been reported.

Dr. Dana said he had made lumbar puncture now in 26 cases, 21 of which were successful. About 12 of these cases were cases of paresis in which it was desired to receive some diagnostic aid. In two the fluid was clear; in others there was a lymphocytosis. He had found the procedure helpful in diagnosing certain acute cases coming into the insane pavilion. The procedure was easy after a little practice, and could be done almost painlessly by using thirty minims of a half per cent. solution of cocain injected ten minutes before the tapping. The procedure had proved helpful in one or two cases of spinal trouble. He believed it was not only of value in diagnosis but that it would prove useful in time in therapeutics. Lumbar puncture almost always caused headache or vertigo for a day or two, sometimes for a week, and often it was very distressing. He believed this could be avoided by removing only 4 cc. of the fluid, a quantity sufficient for diagnostic purposes.

*Delirium Grave; A Critical Study, with Report of a Case with Autopsy.*—Dr. W. B. Pritchard presented this paper. (See March number of this JOURNAL.)

Dr. Adolf Myer was of the opinion that acute grave delirium had, among alienists, much the same position that Landry's paralysis had among certain affections of the spinal cord. The delirium under discussion was uniform and unmistakable in that it could not be analyzed owing to the excited condition of the patient. He had not yet met with a single case in which there had been reason to doubt the diagnosis of delirium grave. In some of these meningitis had only been discovered by microscopical examination; in others, pneumonia or some other condition had spoiled



the purity of the clinical picture. He thought the majority of alienists took a somewhat different position from Dr. Spitzka on this subject, believing it to be a peracute phase, but not a clinical entity.

Dr. Pritchard said that the object of his paper was to endeavor, if possible, to clear up the subject by separating the cases of meningitis, pneumonia and the like from true delirium grave, and emphasizing this differentiation by reporting a striking case coming under his own observation. He was of the opinion that the vast majority of alienists of to-day did not recognize delirium grave as a clinical entity, although of obscure etiology.

# Periscope.

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## REVUE NEUROLOGIQUE

(Vol. 12, 1904, No. 3. February 15.)

1. A Case of Cerebral Hemiplegia with Persistent Hemianesthesia. ED. LONG.
2. Carbon Bisulphide Polyneuritis. GEORGE GUILLAIN and V. COURTELEMENT.
3. A Case of Dysantigraphia. C. GULBENK.

1. *A Case of Hemiplegia.* The author discusses briefly the subject of persistent hemianesthesia of cerebral origin and the situation and extent of the lesions. It has been established by anatomical investigation that either a destruction of the optic thalamus, especially the external and inferior portion or extensive cortical and subcortical lesions may represent the structural alteration in a persistent cerebral hemianesthesia. The thalamo-cortical tracts are destroyed in their course above the internal capsule, and not in the "carrefour sensitif" of Charcot. A case is recorded of left hemiplegia, with contractures and persistent hemianesthesia; hemianopsia and diminution of the taste, smell and hearing on the left side, of ten years duration. Multiple areas of softening were demonstrated by serial section. An area of cortical softening due to occlusion of the artery of the ascending frontal convolution, necrosis and cyst formation in the region of the insula, external capsule and lenticular nucleus, referable to occlusion of the lenticulo-striate artery were found. There was also a focus of softening in the left external geniculate body.

2. *Carbon Bisulphide Polyneuritis.* The patient, a young man, aged 17, had been employed in manufacturing toy balloons for three months. It was necessary to plunge the balloons in a bath containing carbon-bisulphide, so that the exposure was both to the fumes and to direct contact. Three months after beginning his occupation the legs grew weak, later the hands becoming affected. There was at no time pains or any subjective or objective disturbances of sensibility. The hands perspired freely and there were reactions of degeneration in the intrinsic muscles of the hands. No tenderness of the nerve trunks. He was subject to headaches, was forgetful, had at times a feeling of intoxication, and a taste of carbon bisulphide in the mouth. Recovery was complete. The interesting features of the case were the early appearance of the paralysis after exposure (three months), the quadriplegia without sensory disturbances and the amnesia which was general and not restricted to any one period of the patient's life. The authors emphasize the importance of greater care and attention to hygienic measures in factories where carbon-bisulphide is utilized.

3. *A Case of Dysantigraphia.* A physician, aged 70, developed a weakness of the right side of the face and an embarrassment in his speech. He understands and reads in the three languages of which he is master, but voluntary speech is slow and polysyllables are uttered with difficulty, although quite correctly. Writing to dictation is unimpaired. On an attempt to copy, the first two lines are reproduced correctly, the third line shows signs of uncertainty and the fourth line is quite illegible, the patient asserting his inability to proceed further. He can, however, at this moment write correctly and with ease to dictation. After an interval of fifteen minutes, is again able to copy the first two lines, the writing then again becomes indistinct and illegible. Some observer,

believe that in the art of writing, the visual impressions of words and letters are utilized, while others contend that the sound and articulation memories are converted into graphic symbols. The author asserts that both visual and auditory memories are concerned in spontaneous writing; while in writing to dictation the auditory memories alone are involved and in copying the visual memories. Hence granting an independent center for writing in the base of the second frontal convolution, the lesion would implicate the tract uniting this center with the cortical visual center in the case under discussion. The peculiar nature of the functional disturbance is regarded as a sort of *claudication intermittente*. Because of the functional resemblance to the condition described as dyslexia (Bruns), the term dysantigraphia is suggested as appropriate.

(Vol. 12, 1904, No. 4. February 29.)

1. A Case of Brachial Neuritis with Autopsy. M. W. E. TAYLOR (Cleveland).

1. *A Case of Brachial Neuritis with Autopsy.*—The patient, a woman, aged 55, developed symptoms of a right brachial neuritis. Pain began in the ulnar distribution, later extending to the whole arm. The attack lasted six weeks. Six years after the first attack she was again seized with sharp pains in the right arm, followed by progressive atrophy of the muscles; very pronounced in the intrinsic muscles of the hand, less marked in the forearm and only slightly indicated in the arm and shoulder. Electrical reactions were those of degeneration. The tactile sense was diminished over the whole arm and the pain and temperature sense were diminished in the area corresponding to the distribution of the median and ulnar nerves. The bone sensibility was likewise diminished. No trophic disturbances. There was extreme tenderness of the peripheral nerve trunks and of the plexus. The terminal branches of the nerves and the muscles were also quite tender. Two years later the atrophy had diminished somewhat in intensity, but the objective sensory disturbances and the tenderness remained the same. These conditions persisted until the death of the patient, 14 years after the initial attack. *Autopsy:*—Microscopically the cord, nerve roots and nerves were normal, save a diminution in the size of the ulnar nerve. In the ulnar, median and musculo-spiral nerves, there was evidence histologically of an old parenchymatous process with secondary hyperplasia of the neural connective tissue. These changes were marked in the ulnar nerve, especially at the wrists, and present to a lesser degree in the median and musculo-spiral, diminishing in intensity in the axillary region. From the fifth cervical to the first dorsal segments inclusive, the right anterior horn was diminished in volume and the ganglion cells occupying a lateral position in the horn were shrivelled and atrophied. The anterior and posterior spinal nerve roots were normal. The etiology is unknown, but a toxic or infectious origin was thought probable.

J. RAMSAY HUNT (New York).

NEUROLOGISCHES CENTRALBLATT

(Vol. 22, 1903, No. 15. August 1.)

1. Case of Peripheral Right Sided Paralysis of the Hypoglossal Nerve. A. PAUSKI.
2. Concerning the Diagnostic Value of Irregular Pupils in the So-Called Organic Nervous Disease. J. PILTZ.
3. Concerning the Pathogenesis of the Specific Illusions of General Paretics. A. WIZEL.



1. *Paralysis of the Hypoglossus*.—After reviewing the literature of peripheral palsies of the hypoglossal nerve, Pauski records a case of a woman, 29 years old, who had a severe angina, which was complicated by a swelling of the lymphatic (cervical) glands. The pus was relieved by an incision and after recovery it was noticed that there was a right-sided atrophy and paralysis of the tongue. There were no fibrillary twitchings or changes in the electrical reactions. She recovered fully in ten weeks. The cause of the neuritis was the swelling of the cervical glands, the infection being transmitted to the nerves under the tongue. This makes the fifth similar case reported.

2. *Diagnostic Value of Irregular Pupils*.—In the clinical part of his paper Piltz reviews all the literature of the subject and agrees with the most recent authors, Joffroy and Schrameck, who summarize their findings as follows: (1) Every change in the form of the pupil, every irregularity of its contour, ruling out an anomalous condition of the iris and synechia, even when the light reaction is present, indicates either general paralysis, tabes dorsalis or syphilis. (2) The value of the irregular pupil from a diagnostic standpoint is as important as the Argyll-Robertson pupil, and may be the preliminary stage of that pupil. For convenience's sake Piltz classifies the pupillary irregularities into two categories, fluctuating and constant, and he further includes under the first head, transitory paresis of a part of the iris and a displacement of the position of the whole pupil. Small changes occur in general paresis and in katatonia. In the second category belong all changes which may occur in the organic brain and mental diseases. To determine the cause of the pupillary changes Piltz carried on a series of experiments upon the lower animals by stimulating by means of an induced current, the ciliary ganglion and the long and short ciliary nerves, and produced every kind of change ever noticed in man. His conclusions are as follows: (1) The following pathological changes in the contour of the pupil may be observed, (a) summary of fluctuating changes of the different parts of the iris, (b) disturbance of the position of the whole pupil, (c) constant irregularities. (2) All of these changes are constant in general paresis, tabes dorsalis and cerebrospinal syphilis. (3) This sometimes occurs in the case of other nervous diseases, and rarely in the healthy. (4) As the irregularities are sometimes seen upon the appearance of the Argyll-Robertson pupil, and this may be the preliminary stage of this condition, the diagnostic feature is evident. (5) In the similarity of the experimental and pathological condition of the pupils, it is probable that the nuclei of the long and short ciliary nerves are affected. (6) Irregular motility of a separate part of the iris depends upon a paresis of the corresponding branch of the ciliary nerves. (7) Disturbance of the position of the whole pupil is an indication of a combination of irritation, or paresis, or paralysis of the different branches of the long and short ciliary nerves. (8) Constant irregularity is the result of a complete paralysis of a particular part of the iris, due most probably to an atrophy of its nerve cell.

3. *Pathogenesis of Specific Illusions in General Paretics*.—The delusions of general paretics are characterized by exaggerated ideas and uncontrolled hyperbolism, while those of a paranoiac are usually confined within the bounds of possibility. Wizel gives the results of experiments to determine the basis of the specific delusions met with, principally as regards the sense of time and space, and comes to the conclusion, that general paretics have lost all idea of time and space. As a consequence all ideas which depend upon these qualities are invariably wrongly represented.

(Vol. 22, 1903, No. 16. August 16.)

1. A Further Contribution to the Pathology of Tetany, Together With a Note Concerning the Chemistry of Calcified Cerebral Vessels. A. PICK.
2. Concerning the Anthropology of the Spinal Cord. H. PFISTER.
3. Perverse Temperature Findings. W. ALTER.
4. Concerning a New Method for Staining Medullary Sheaths. E. FRAENKEL.
5. On the Histology of Multiple Sclerosis. M. BIELSCHOWSKY.

1. *The Pathology of Tetany*.—In a previous number of this journal Pick reported two cases of tetany in which on examination he found a calcified condition of the minute arteries of the grey matter of the cerebrum and cerebellum. He now reports a third case with similar findings. In his third case he found the vessels of the cerebellum calcified, especially those in the neighborhood of the nucleus dentatus. The vessels of the grey matter of the cerebrum were much less calcified than those of the basal ganglia. Pick and Gierke have demonstrated that certain calcified vessels were characterized by a presence of calcified albumite of iron. An examination of the calcified nodules of this case gave a positive reaction for iron. As a consequence of the author's having found this calcified condition of the arteries in four cases of tetany, he concludes that this condition may be a constant phenomenon of this disease and may be its etiological factor.

2. *Anthropology of the Spinal Cord*.—(Continued Article.)

3. *Perverse Temperature Findings*.—Alter reports a very interesting case of perverse temperature perception in a general paretic. Testing this man anywhere he would call cold, warm and warm, cold. He was put in a bath, but with the same result. There is no adequate explanation for this phenomenon.

4. *New Medullary Stains*.—Frankel describes a new stain for medullary sheaths. The tissues to be stained are hardened in Müller's fluid or in Weigert's potassium bichromate solution. After embedding in celloidin the sections are placed in polychrome methylene blue for two to four hours, then washed in distilled water and differentiated in a saturated watery solution of tannic acid. The differentiation is carried on until the section is almost decolorized, and is again washed in distilled water. The same process is carried on again, but the differentiation is only allowed to the required degree. The sections are then placed in 96 per cent. alcohol, cleared in oil of bergamot and xylol, and mounted in balsam. Fraenkel claims that this method stains the tangential and the underlying supraradial fibers ideally, and it is well known that this is hard to bring out by other stains. Again in addition to staining the medullary sheath a blue black, it also stains the nuclear elements, thereby obviating the necessity for other stains.

5. *Histology of Multiple Sclerosis*.—The author had opportunity to study five cases of multiple sclerosis—clinically and pathologically. The cases were from two to twenty years in duration. By a method which the author previously described in this journal and by a modification of this method which is soon to be published the axis cylinders both in medullated and in unmedullated fibers is shown. This method depends upon the reduction of an ammoniacal silver solution by formaldehyde. Sclerotic masses which stained by Weigert's method appeared to be free from fibers, by the silver impregnation method were full of axis cylinder fibers. Both in the old and the recent sclerotic masses the axis cylinders stained equally well and showed no alteration as compared to healthy tissue. In one section taken from the medulla it was impossible to trace the degenerated from the healthy nerves, except by the presence of the

diseased blood-vessels. In some sections, however, the fibers were involved and varied in shape, some being beady and others split. It was interesting to compare this method with other stains, as Kaplan's axis cylinder stain, which stains a cement substance in the medullary sheath, called by him the axostrome. This substance is histologically and chemically associated with the sheath. The axostrome picture of old sclerotic patches seems perfectly normal, while in fresh patches on the other hand, the axostrome stain, showed fibers in places where there were none by the Weigert stain. Therefore, the author concludes there are two categories in the axis cylinders of sclerotic patches, (1) those in which the axostrome is retained, (2) those in which the axostrome is lost. The axostrome free fibers are well shown by the silver impregnation method, and in most cases cannot be distinguished from medullated fibers. Bielschowsky believes that the axis cylinder processes seen by his method of impregnation are the remains of the old fibers, and that this makes easier the comprehension of multiple sclerosis, and that it explains the absence of secondary degeneration.

WEISENBURG (Philadelphia.)

DEUTSCHE ZEITSCHRIFT FUER NERVENHEILKUNDE

(Vol. 23, 1903. Heft 3-4.)

10. Contribution to the Pathology and Pathological Anatomy of Toxic Polyneuritis After the Employment of Sulfonal. ERBSLOH.
  11. The Sensible and Motor Segmental Localization for the Most Important Nerves of the Brachial Plexus. BIKELES and FRANKE.
  12. Cerebral and Spinal Reflexes. V. KORNILOW.
  13. Thermoanesthesia and Analgesia as Symptoms of Focal Disease of the Base of the Brain. A Clinical Sketch. ROSSOLIMO.
  14. Casuistic Contribution to the Differential Diagnosis of Multiple Sclerosis, Particularly as Compared with Cerebral and Cerebrospinal Syphilis. PINI.
  15. Actual and Apparent Paralysis of the Serratus. BIRO.
  16. The Participation of the Neuroglia in the Formation of Scars in the Brain. EDUARD MÜLLER.
  17. Three Cases of Chronic Progressive Chorea, L. MÜLLER. (Chorea Hereditaria, and the Chorea of Huntington.)
  18. Brief Communications. Aphorisms upon Psychical Diet. LAQUER.
10. *Toxic Polyneuritis in Sulfonal*.—Erbisloh reports the case of a woman suffering from carcinoma of the cervix. She had had repeated hemorrhages, and had become profoundly anemic. In the course of five days she received 150 gr. of sulphonal in order to control insomnia. Five days later she developed pain in the calves, followed by paralysis, first in the legs and then in the arms. Curiously the feet and hands were the last parts affected. Within 16 days the paralysis had involved the muscles of respiration, and the patient died. The urine contained haematoporphyrin. Mentally she had hallucinations, and towards the end was difficult to arouse, and had incontinence of urine and feces. Macroscopically the central nervous system was negative. There was degeneration in the peripheral nerves involving the myelin sheathes and the axis cylinders, characterized by the appearance of small masses at different points in the myelin sheathes that stained black with osmic acid. The anterior roots of the central nervous system appeared to be intact. There was reason to believe that the process commenced in the peripheral portions of the nerves, and that the functional changes preceded the anatomical changes because in the brachial plexus no histological alterations of the nerves could be detected.



11. *Brachial Plexus Segmentation*.—Bikeles and Franke have undertaken to determine the segmental distribution of some of the nerves of the brachial plexus by resecting them in dogs, cats and rabbits, and then studying the changes in the spinal cord. When the radial, median, and ulnar nerves were completely resected it was found that the sensory fibers passed into the cord at the level of the seventh and eighth cervical and first dorsal segments. When the median nerve was resected the changes were pronounced in the seventh and eighth cervical segments, and were present, but much diminished in the first dorsal segment. When the ulnar nerve was resected changes were found chiefly in the eighth cervical, and less distinctly in the first dorsal segments. When the radial nerve was resected the changes were found in the seventh and eighth cervical segments, but, excepting in the rabbit, were not present in the first dorsal segment. The Nissl method was employed for the determination of the motor segments. After resection of three nerves the same three segments were involved. The individual nerves showed the following distribution. The radial arose from the seventh and eighth cervical and first dorsal; the median, from the seventh cervical and first dorsal; and the ulnar from the eighth dorsal. In all cases the degeneration was found only in the dorso-lateral group of cells of the spinal cord. This was true in the cords of both the cat and dog. In the rabbit and guinea pig the results were slightly different.

12. *Cerebral and Spinal Reflexes*.—Von Kornilow discusses the cerebral and spinal reflexes. Among the more recently described of these he mentions the scapulohumeral reflex, which, he believes, is about as valuable as the bicipital and tricipital reflexes. The supraorbital reflex, which he includes among the defensive reflexes, is particularly marked—in his experience—in cases of neurasthenia. The hypogastric reflex, which occurs in men as well as women, and therefore is not analogous to the cremaster reflex, is not more frequent than the abdominal reflex. The Babinski reflex, according to him, consists of an extension of the great toe; the other toes may be extended, remain quiet, or even be flexed. It may be produced by various other forms of irritation than merely stimulating the sole of the foot. In hemiplegics movements of the sound foot and leg may cause the reflex in the paralyzed one. Even in apparently normal persons it may be produced by voluntary movements, and in a case of tuberculous meningitis, in which it did not occur as a result of irritation of the sole of the foot, it was produced by strong pressure in the region of the quadriceps muscle, and affected both sides. It is probably due to some disturbance of innervation of the muscles. Two types may be distinguished; a weak type, in which only the great toe is extended, and a strong type in which all the toes are extended. It bears no distinct relation to the other reflexes, for it may exist when the knee-jerk is absent. Kornilow has described four cases in which careful microscopical examination of the pyramidal tract from the cortex to the sacral portion of the cord, failed to reveal any degeneration. Nevertheless, the Babinski phenomenon was present, and the absence of all symptoms of pyramidal disease excepting this, seemed to indicate some functional disturbance. It is of no value in the differential diagnosis of hysteria, because it may be present in hysterical cases. Kornilow then discusses the hypotheses that have been suggested to explain the loss of reflexes in total transverse lesion of the spinal cord above the reflex arc. He believes that none of the hypotheses are satisfactory, and that it behooves us to explain why in other cases in which this reflex arc is intact, the reflexes are lost. The nature of the tendon reflexes is still a subject of lively discussion. Von Kornilow agrees with Sternberg that there are bone and muscle reflexes. The bone reflex is a true reflex; the muscle reflex may be merely mechanical. The con-

tralateral reflex which was supposed to prove the spinal nature of the knee-jerk, may merely indicate that the shock to the bone is transmitted through the bony pelvis to the bone of the other side.

13. *Thermoanesthesia and Analgesia*.—Rossolimo has observed six patients in whom sensory disturbances were associated with focal disease of the pons and medulla. Briefly given they are as follows. The first, a man of forty-two years, had headache, vertigo, palpitation, vomiting and weakness of the right side of the face. Later he developed a cerebellar ataxic gait, Romberg's phenomenon, disturbance of swallowing, weakness of the muscles of mastication on the right side, and ataxia of the limbs on the right side. There was complete analgesia and loss of temperature sense on the left side of the body; the sensation of the mucous membrane was preserved. Second, a man of forty-five years, first noticed headache, vertigo, nausea, vomiting and hiccoughing. Later he developed headache of the right side, uncertainty of the movements of the extremities of the right side, ataxia in the right arm, with paresthesia and complete thermoanesthesia and analgesia of the right side of the body. Later there was cerebellar ataxia in walking. Third case, a man of sixty-five, first noticed headache, vertigo, vomiting, and constant hiccoughing. Later he developed numbness in the arms and legs, diplopia, cerebellar gait, Romberg's phenomenon, ataxia, and increase in the reflexes. Pain and temperature sense were completely lost on the right side. Fourth case, a man of sixty-seven years, first noticed vertigo, and indistinct speech. Later he had a cerebellar ataxic gait, pareses of the muscles supplied by the right facial nerve, and of some of the eye muscles, disturbance of swallowing, and diminution of the pain and temperature sense of the skin in the left half of the head and neck, the upper portion of the trunk, and the left arm. The fifth case, a man of forty-seven years, first noticed vertigo, nausea, vomiting, hiccoughing, and disturbance in swallowing. Later he had a slight aphonia, nystagmus, cerebellar ataxia chiefly of the left side, and profound diminution of the temperature and pain sense in the distribution of the left trigeminal nerve, and in the extremities of the left side and in the left half of the trunk. The sixth case, a man of sixty-four, first noticed vertigo, nausea, vomiting, hiccoughing, and formication in the left half of the face and left hand. Later there was profound diminution of the sensation for heat and pain in the extremities on the right side, and in the right half of the body. There was also melituria and diminution of the patellar reflexes. The most constant symptom in all these cases is the thermoanesthesia and analgesia, which may be unilateral or crossed. The other symptoms were ataxia, disturbance of the muscles of the eye, and some subjective sensory symptoms. There were also disturbances of the reflexes, some vasomotor and trophic disturbances and sometimes disturbances in the sensation of touch. The muscular sense was rarely disturbed. Paresis was not uncommon. Rossolimo concludes that in circumscribed lesions certain parts in the pons and medulla may cause dissociation of sensation similar to that of syringomyelia. Therefore, in these structures there must be special paths for the conduction of these forms of sensation.

14. *Multiple Sclerosis, Diagnosis*.—Pini reports a series of cases in which the diagnosis between multiple sclerosis and syphilis of the central nervous system was more or less difficult. The first, a man of forty-nine years, who had had syphilis, complained of vertigo, weakness, spastic paresis particularly in the right leg, disturbance of the bladder and rectum, intention tremor in the right leg, and an indication of intention tremor in the right arm. He regards it as a case of multiple sclerosis, although there was no nystagmus, and speech and the emotional condition are not mentioned. The second case was a woman of thirty-

nine, who had vertigo, diplopia, headache and vomiting. There was weakness in the legs and arms, and later she developed drawling speech, cerebellar ataxia, intention tremor of the arms, spastic pareses, and although there was no scanning speech and no nystagmus, and one of the pupils showed sluggish reaction to light, a diagnosis of multiple sclerosis was made. Third patient, a woman of thirty-two, had had pain in the back and around the waist. There was slight nystagmus, the Brown-Séquard syndrome, and some increase in the reflexes. The pupils were paler than normal. A diagnosis of syphilis of the central nervous system was made, although nothing in the history indicated syphilitic infection. There was some improvement upon specific treatment. Fourth case, a man of forty-two years, after an attack of influenza had vertigo, tremor in the hands, pain in the back and weakness. There was a spastic gait, no ataxia, and when examined, no tremors. There was some diminution of sensation in the right lower leg, and marked weakness in the left leg. Although the Brown-Séquard syndrome was present, the symptoms indicated multiple sclerosis more than they did cerebral syphilis. The fifth case, a woman of forty-four years, had noticed weakness in the left foot and pain in walking. There was slight difference in the pupils, but the reactions were normal. The pupillæ were pale. There was no nystagmus; some weakness in the left facial nerve, increase in the tendon reflexes, intention tremor of both hands, and a distinct Romberg's symptom. There was slight rigidity in the right leg which was very weak, and almost complete paralysis of the left leg. The symptoms are doubtful, but the case is probably one of multiple sclerosis. Sixth case, a man of thirty-four years, had had syphilis, and two years later suffered from attacks of vertigo. The patient subsequently developed distinct nystagmus; there was increase of the reflexes in the left arm, weakness of both hands, especially of the left, marked increase of the reflexes in the legs, especially of the left, and some disturbance in smell, taste, and hearing, the left side being weaker than the right in all three. This case presented considerable difficulty in diagnosis. There is certainly an organic condition, but the mixed left-sided hemiplegia cannot be ascribed to multiple sclerosis. Pini, therefore, assumes that the patient also had hysteria.

15. *Serratus Paralysis*.—Biro reports two cases of paralysis of the serratus muscle, the first apparently coming on without distinct cause; the second following an injury. In both cases the chief symptoms were inability to lift the arm, and the wing-like position of the scapula. He discusses the symptomatology of this condition, the differential diagnosis, which must be made from other conditions that cause winging of the scapula, speaks of the extreme infrequency with which it occurs, and then discusses the prognosis which is favorable in functional disease, and depends upon the cause in other conditions. The treatment consists in the removal of the cause, if this is possible, and in encouraging patients in whom the condition is purely functional, to contract the muscle.

16. *Scartissue and Neuroglia*.—After discussing the literature of the subject, Müller describes the histological changes in five patients with scars in the brain. The tissues were stained differentially for neuroglia, connective tissue, and elastic fibers. The results showed that the neuroglia has a very considerable capacity for regeneration. It behaves exactly as the connective tissue in other organs, that is to say, whenever the true nervous tissue is destroyed it proliferates to supply the defect. This proliferation appears to be chiefly of the fibers which are present in this scar tissue in enormous numbers. The connective tissues also takes part in the proliferation, but not to the same extent as the neuroglia does. It has a tendency not to proliferate in those areas in which the



neuroglia proliferates, but is apt to remain outside the central nervous system.

17. *Huntington's Chorea*.—Müller contributes a new family tree of hereditary chorea. The great-grandfather died at the age of fifty-two years, of unknown cause; the grandfather died at the age of sixty-eight years, and had some irregular movements of the limbs; a son by his first wife died at the age of forty-six and had twitchings of the extremities. Of two children by the second wife one died at fifty-seven, and it is not certain whether chorea existed; the other is living at sixty years of age and has had chorea for sixteen years. The son by the first wife had eight children. Of these the second has had chorea for three years. One other has epilepsy. The others are healthy or dead, and several of them have healthy children. He describes the case of the second son, and also two other cases, both of which are fairly typical. The second of these, a man of forty-seven years, appears to be the first in his family who has ever had the choreic movements. The third was a step-sister of the father of the first case described, who had had chorea.

J. SAILER (Philadelphia).

#### MONATSSCHRIFT FUER PSYCHIATRIE UND NEUROLOGIE

(Vol. 14, 1903. September. Heft 3.)

1. A Contribution to Polyneuritis. H. DI GASPERO.
2. A Case of Elementary General Somatopsychosis. O. FOERSTER.
3. Hallucinatory Insanity in Diseases of the Organs of Hearing. V. BECHTEREW.
4. Contribution to the Knowledge of the Amnesic Disturbances After Attempts at Strangulation. M. SOMMER.
5. A Simple Apparatus for Measuring Attention. T. ZIEHEN.
6. Report upon the 28th Traveling Association of the Neurologists and Alienists of the Southwest Part of Germany on the 23rd and 24th of May, 1903, in Baden-Baden. R. LAUDENHEIMER.

1. *Polyneuritis*.—Di Gaspero reports an interesting case occurring in a peasant and the result of hysteria. He was a strong drinker and the disease had commenced after a prolonged debauch, during which he had been chilled. There were pains, diarrhea, nausea, prostration, vertigo and progressive weakness of the legs. Both legs finally became completely paralyzed; the patient was profoundly apathetic. In the course of the disease various muscles became completely paralyzed, as for example, the abducens. There were muscular atrophies, tenderness in the head, trunk and limbs, increased reflexes with patellar and ankle clonus, ataxia, and bilateral papillitis of the optic nerves. There were from time to time severe pains in the region of the trigeminus. At the end of 12 weeks improvement commenced, and at the end of 20 weeks the patient recovered. Gaspero discusses the nature of this case which he regards as one of toxemia giving rise to polyneuritis and Korsakow's psychosis. He discusses various interesting symptoms of the case, the possibility of tumor, and superior hemorrhagic polioencephalitis. He concludes, however, that it is really a form of neuromyositis with involvement of the optic nerves.

2. *Somatopsychosis*.—A woman of forty-nine years, had from the age of sixteen, periods during which she seemed to have difficulty in recognizing objects. As she grew older these were associated with imperative occupation of her mind with the appearance of persons or objects. There was also a sense of pressure upon and emptiness within the head. The special sensations were entirely normal. All forms of touch sense were preserved and were normal. The case progressed;

she finally spent most of her time in bed; said nothing, excepting to answer questions very faintly. She was with difficulty persuaded to eat, and she was somewhat slow about recognizing objects. The three chief manifestations of this condition were the diminution of the consciousness of the personality, the defective power of recognition and representation, and an imperative occupation of the mind with various subjects.

3. *Auditory Hallucinations in Ear Disease.*—Von Bechterew reports four cases of hallucination of sound occurring in patients with disease of the middle ear. This form of insanity rarely terminates in dementia. Often the patients recover entirely as a result of improvement in the hearing apparatus. Sometimes, however, if the condition persists hallucinations may occur in connection with the other organs of sense.

4. *Amnesia After Attempted Strangulation.*—A man of thirty-six years, with neuropathic heredity and addicted to alcohol, made an attempt at suicide. He was cut down before death, but remained unconscious for two hours, during which time he developed marked motor disturbances, the movements being coördinated, and after recovering consciousness he had a retrograde amnesia lasting for several days. There was also diminution in the power of attention, so that he forgot what he had seen in a few moments. Gradually he recovered his memory of the events before the attempted suicide, including the attempt itself. Sommer calls attention to similar cases which have occurred as a result of violent emotional shock.

5. *Attention Measurements.*—Zichen has devised a simple apparatus for measuring the power of attention. It consists of rotating drums upon which are fixed series of twenty letters. The patient regards this through a tube and diaphragm, and is requested to note how many times a certain letter or a certain combination of letters appears in a given group of twenty. The proportion of errors indicates the defects in the attention.

*Association Notes*—The following papers were read: The Pathology and Operative Treatment of Brain Tumor, Fürstner; Epileptic Equivalents, J. Aschaffenburg; Rare Vertebrate Brains, S. R. Burkhardt; The Investigation of the Pupil in Functional Psychoses, Bumcke; Hydrocephalus in Adults, Gerhardt; The Operative Treatment of Brain Syphilis, Bayerthal; The Nucleus Salivatorius Inferior and the Craniovisceral System, Kohnstamm; Is There a Paralytic Degeneration of the Nerves? Bethe; A Hitherto Undescribed Change of the Medulla of the Central and Peripheral Nerve Fibers, Schaeffer; The Weight of the Brain and of Various Parts of the Brain in Children, Pfister; The Capacity of the Child's Cranium, Pfister; The Cytodiagnosis of the Cerebrospinal Fluid, Schoenborn; Contribution to the Knowledge of Thomsen's Disease, Hoffmann; The Sources of Error in Marchi's Method, Spielmayer; The Presentation of the Axis Cylinder in the Areas of Multiple Sclerosis According to Modern Methods, Bartels; Papillitis and Multiple Sclerosis, Rosenfeld; Certain Characteristic Changes In the Action of the Heart as a Result of Nervous Influence, A. Hoffmann.

(Vol. 14, 1903, No. 4. October.)

1. Some Hitherto Unconsidered Reflex Movements In Infantile Spastic Diplegia. H. OPPENHEIM.
2. A Rare Form of Mental Disturbance. W. ALTER.
3. Contribution to the Clinical Significance of Babinski's Plantar Reflex and Oppenheim's Leg Reflex. B. PFEIFFER.
4. The Course of the Fibers in the Brain of the *Galeopithecus volans*. T. ZIEHEN.

5. Scientific Meeting of the Physicians of the St. Petersburg Clinic for Nervous and Mental Disease. E. GIESE.

1. *Reflexes in Infantile Spastic Diplegia*.—A child of four years with typical symptoms of infantile spastic diplegia, when the lips were touched with a glass rod showed a series of rhythmical swallowing, tasting and sucking movements. A child of three years and three months, who also had typical symptoms, and whose swallowing and chewing were only performed with difficulty, showed—if the lips or tongue were touched with a glass rod—rhythmical movements in the jaws, tongue and lips resembling chewing, sucking and swallowing. The muscles of the jaw were first involved, then those of the tongue and lips, the whole lasting for from 10 to 20 seconds, and involving 25 to 30 movements. If the patient were startled by a sudden noise tonic spasm of the muscles of the trunk and extremities occurred, during which the arms were lifted and stretched. Oppenheim regards this as increased susceptibility to fear. As the movements produced when the child was startled were always the same, he regards it as an exaggerated acoustic motor reflex. The first reflex appears only in children suffering from Little's disease or the infantile pseudobulbar paralytic form of Oppenheim. It is probably in some way associated with the difficulty in deglutition from which these patients suffer. Both symptoms may be due to the disturbance of the higher centers, and the predominance of certain reflex centers through the medulla.

2. *Rare Mental Disturbance*.—Alter reports the case of a Hebrew fifty-four years of age, with pronounced neuropathic heredity, a man of high intelligence and social disposition, who gradually altered in character, became melancholic and had delusions. His mental condition slowly became confused; he had failure in the recognition of objects, or at least was in a state of such extreme doubt that he was uncertain regarding their nature. There were some motor disturbances, unwillingness to eat, and finally he developed a paranoiac state. The opium treatment produced a distinct remission. The disturbance in orientation and akinesia, however, persisted. The patient improved somewhat, but there were still increased tendon reflexes in the lower extremities without Babinski's sign. The fields of vision were contracted. The case represents a variety of forms of disturbance. There was a defect in the identification of objects, and disturbance of the recognition of his own individuality. The patient also had a disturbance of the time sense, and there were numerous attacks in which hallucinations were common. A remarkable fact was that when the diabetes, from which the patient suffered, was increased in severity by the administration of sugar-forming substances, the symptoms grew worse, and when the diabetes was improved they were better. Alter, therefore, concludes that it was an expression of a constitutional disease, the more important symptoms resembling those of hysteria.

3. *Babinski Reflex and Oppenheim Leg Reflex*.—Pfeiffer has examined 547 cases with reference to the Babinski reflex. In 200 healthy persons it was absent. The leg reflex of Oppenheim was also absent. In forty children less than a year old there was plantar flexion ten times and dorsal flexion twenty-five times. In five cases the results varied. Stroking the leg caused plantar flexion six times and dorsal flexion fourteen times. In twenty-four children all less than three years of age plantar flexion occurred seventeen times and dorsal flexion five times. In two cases the results differed on different sides. In eighty-three neurasthenic individuals a doubtful Babinski was obtained on one side in one case. In this case the leg reflex of Oppenheim was also positive. In one case of hysteria the Babinski reflex could be produced by suggestion. In six cases of epilepsy the Babinski was



present twice. In functional tremors, states of inhibition, paralysis agitans, alcoholic delirium and peripheral neuritis the reflex was absent. In forty cases of tabes in imperfect Babinski was observed in two; in anterior poleomyelitis and in a case of syringomyelia the reflexes were normal. In one case of acromegaly there was a Babinski reflex on the left side. In medullary spinal tumor, post-traumatic injury to the spinal column; spondylitis; cerebrospinal meningitis; cerebral tumor; paralytic dementia; cerebrospinal syphilis; spastic paralysis; transverse myelitis; and bulbar paralysis the Babinski reflex was obtained. In fifteen of twenty-four cases of multiple sclerosis the Babinski was present. In sixty-three old cases of hemiplegia both Babinski and Oppenheim reflexes were present. There seems, therefore, good grounds for regarding it as a sign of a pathological spastic condition of the motor system.

4. *Monkey Brain*.—Ziehen gives a careful and excellent illustrated article upon the anatomy of the brain of the *Galeopithecus volans*. It is not suitable for an abstract.

J. SAILER (Philadelphia).

#### JAHRBUECHER FUER PSYCHIATRIE UND NEUROLOGIE

(Vol. 24, 1903, Nos. 2, 3.)

1. The Anatomical and Physiological Results of Hemisection of the Mesencephalon. PROBST.
2. The Measurement of the Size of the Pupil and the Determination of the Light Reaction Time of the Pupil in Certain Psychoses and Diseases of the Nervous system. ALFRED FUCHS.

1. *Hemisection of Mesencephalon*.—This paper contains the results of some carefully carried out and carefully observed animal experiments. The physiological as well as the anatomical phenomena are noted with the same care thus giving to this work an almost unique interest. In this abstract only the most important facts will be mentioned as the extent of the paper renders a full résumé impossible. The experimental data derived from the hemisection through the corpora quadrigeminal region of the cat and the hedge-hog are stated and the degeneration of the fiber tracts as well as the physiological symptoms are described. The animals remained alive for several weeks and were then killed and the whole nervous system was then sectioned in perfect series. The author attempts to prove the statement made by him before to the effect that in monkeys, dogs, cats and hedge-hogs all centripetal paths which go the mesencephalon end here in protoplasmic branching and that none of these fibers go unbroken through the internal capsule on their way to the cortex. Experiment No. 1. The territory between the anterior and the posterior quadrigeminal bodies was hemisected without any apparent lesion of the cerebrum or the cerebellum. This is easily accomplished. A small opening is bored in the sagittal line of the skull and through this, by means of the author's canula and retractor, the brain stem can be bisected. The whole central nervous system was studied in perfect series stained with osmic acid. The conclusion derived from a study of the series in this animal is that all centripetal "haubenbahn" end in the mesencephalon. There was not one degenerated fiber to be seen, in the internal capsule. The most striking physiological observation in a cat so operated upon is, that even a hemisection of the brain stem does not produce a permanent paralysis. Three weeks after such an operation the cat could spring and jump. At the same time the cortex was laid bare under chloroform and the motor area stimulated with faradic current. The left gyrus sigmoideus reacted by causing epileptiform convulsions limited to that side. On the right side slight twitching but no epileptiform attacks were noticed. In the second experiment in

addition to the hemisection the following structures were injured: The instrument went through the posterior right quadrigeminal body through the right "Hauben" field, through the "Schleife," the foot of the crurae to the pontine arm. In the caudal level the cut reached to the trochlear nucleus and ventrally through the pyramidal tract. A study of the serials in this brain failed to show a single degenerated fiber on its way through the internal capsule to the cortex. The physiological data of the first experiment are substantiated in this one, but owing to the greater complexity of the lesion the changes were more numerous. The same experiments were carried out on two hedge-hogs. The study of the serials of these brains gave a great deal of anatomical data on the course of the fiber tracts which is not easy to abstract. The fate of the centripetal fibers as found in the first series of experiments is proven by these two brains which were studied in the same careful way and in the same manner.

2. *Pupil Reaction Time.*—This paper is to be regarded as a very valuable addition to the means of careful neurological diagnosis at our disposal. The pupil so easily studied and for that reason so carelessly should be always subjected to the most careful tests before its phenomena can be of any value. To furnish these additional data is the purpose of this article. The two main purposes of this investigation are to consider the former methods of studying the pupil in respect to the determination of the size of the pupil and the rate of the light reaction. The second purpose is to use the results so obtained in the diagnosis of certain nervous affections. A history of the various methods of measuring the pupil is given with a description of the instruments in use. The author gives the results of his investigations in two tables, one in which the photographic method was used, and the other in which the instrument of Obersteiner-Redlich, called the Psychodometer, was used. The photographic method is naturally the most exact, but in certain cases, owing to the color of the iris, it can not be used. By the former method ninety-three cases and by the latter fifty-four were examined, and the results tabulated. The pupils were studied to determine the average time of the reaction and their average size. The results in amentia, acute psychoses and hallucinatory conditions were so variable that the author concludes that there is no constant law governing them. Fifteen cases were so examined. The six cases of melancholia and mania showed the same variability. For hysteria a lower rate of pupillary action was obtained, this is so marked and in such contrast to the speed found in epilepsy that the author believes that it can be used in a differential diagnostic way. In eleven cases of neurasthenia the light reaction was found to be rapid and prompt. The size of the pupil is large and the size before and after illumination is very distinctive. It was formerly believed that a considerable degree of spasmodic movement was characteristic of neurasthenia. This is disproven by the experience in this study where it was found possible to obtain a steady pupil by careful fixation and careful illumination. In seven cases of epilepsy it was found that a marked rapidity and an excursion of more than average was characteristic. In twelve cases of tabes and progressive paralysis one example of the so-called paradoxical pupil was found. These brief abstracts may serve to indicate the wealth of data interesting to the neurologist which this paper contains. For the further use of this method means of simplifying the examination must be devised. If this can be arranged a field hitherto almost unexplored will be opened.

SCHWAB (St. Louis).

## Book Reviews

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LA LOGIQUE MORBIDE. L'ANALYSE MENTAL. PAR N. VASCHIDE, Chef des Travaux du Laboratoire de Psychologie Experimentale et CL. VURPAS, Interne des Asiles de la Seine. F. R. de Rudeval et Cie. Paris. G. E. Stechert, N. Y.

Morbid analytical mind states are common symptoms in the young of all nations. Among certain races the tendency to exaggerated emotional states persists with greater frequency than with others. It is with the study of these minds that are inclined to morbid introspection that the present volume concerns itself.

The authors have discussed with brilliancy the habit of morbid psychological rumination which touches so closely on minor mental alienations. They lay stress on four types—full clinical studies of which make up an integral part of the book.

In the first type the introspective patient concentrates his morbid analyses more particularly on some part of the mechanism of his body. He dissects his various symptoms at great length and makes mountainous forecasts on mole hill actualities.

A second series develops a complete confusion of ideas, between his thoughts themselves and the objects of his thought. His ego becomes compounded in the caprices of his association of ideas.

A third group exaggerates all that happens about him. All that he sees and hears, the slightest words and gestures have great significance. They arrive at a state of ideational vertigo—everything making it necessary for them to think it out.

A fourth class develop typical states of metaphysical delirium.

From their studies the authors develop some very suggestive ideas interpretative of mental disaggregation. The volume is well worth reading.

JELLIFFE.

LES PHÉNOMÈNES PSYCHIQUES. RECHERCHES, OBSERVATIONS, METHODES. Par. J. MAXWELL. Docteur en médecine. Avocat général près la Cour d'appel de Bordeaux. Félix Alcan, Paris, 5 fr.

It is not often that one finds an author with the courage of his convictions, who at the same time in advocating the claims of an unpopular cause, can seem to detach himself from the animosities of debate and from the heat of discussion and calmly present his views as the products of what he believes to be scientific inquiry.

The present work appeals to us from this standpoint if no other in that while the author is a firm believer in the general laws of psychical phenomena, and is a literal follower of the school of "table knocking," planchette, levitation, clairvoyance, etc., he admits the possibility of his being mistaken while showing why he does not think himself imposed upon.

As for the book itself we do not remember having read as clear an exposition of the general series of happenings that marshall under the head of Psychic Phenomena as is here to be found. The work is at once a guide and a summary of exploration in this region of twilight of consciousness, where misinterpretation, deception, and suggestion are so prone to prove the ignes fatui of the majority of students.

The author's study of simulations and deceptions is particularly full and pertinent, and if we approach the subject with the severely skeptical atti-



tude so rife among so called scientists, we cannot resist the force of the argument for good faith on reading these chapters.

The book is certainly interesting and suggestive although it fails to carry conviction to the individual reviewer.

S. E. J.

JAHRESBERICHT ÜBER DIE LEISTUNGEN UND FORTSCHRITTE AUF DEM GEBIETE DER NEUROLOGIE UND PSYCHIATRIE. Dr. ED. FLATAU, Dr. E. MENDEL and Dr. L. JACOBSON. Vol. V. Bericht über das Jahr, 1901. S. Karger.

We have been late in our review of Volume V. of this splendid work but we hope thereby to repair a fault by our steadfast enthusiasm concerning this indispensable year book. If workers in neurology would save the few dollars they spend in year books of other manufacture in which the subjects of their interests are so inadequately covered and get this they will never regret it.

In view of the monumental character of the work we feel that one of the duties of those working in the sphere of nervous and mental diseases is to encourage as far as possible such a publication that it may continue to be of use to ourselves and to our patients. It is the only year book worth the while in the specialty, apart from our current leading journals, and \$8.00 is well spent in its purchase.

The present volume differs in no essential regard from its predecessors. It is marked by the same faithful summary of the facts relative to the various topics germane to neurological medicine. We again offer our thanks to editors, assistants and publishers alike for offering the profession so useful a volume.

JELLIFFE.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1904. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery. Arranged under the editorial charge of GEORGE M. GOULD, A. M., M. D. In two volumes. Volume I, *General Medicine*. W. B. Saunders & Co.

The American Year-Book has been before the reading public for many years. It is a very useful volume.

Speaking from the standpoint of the student of nervous and mental disease it is extremely inadequate. This is particularly true for the section on mental diseases. Here nine papers are reviewed—all of them of comparatively trivial importance in view of the very large number of extremely interesting contributions which have been made during the past year in the subject matter of psychiatry. We had the same criticism to make of the section of mental diseases last year and cannot find any improvement in this present volume.

The percentage of mental disease to other diseases in the community is far higher than the amount of space devoted to it in this year-book.

Nervous diseases, apart from mental disorders are represented in from 4-5 per cent. of the community. From the statistical point of view alone the less than 3 per cent. of space in the American Year-Book devoted to both subjects is not adequate.

For the general practitioner the summary on nervous diseases will be found useful. For the large number of men who make the subject a specialty or who are interested in Institution work, and there are thousands of them, this summary will prove a disappointment. May we hope for better things in the next volume.

POPE.

LA NATURE SYPHILITIQUE ET LA CURABILITÉ DU TABES ET DE LA PARALYSIE GÉNÉRALE. Par L. E. LEREDDE. Paris 1903.

In summing up the conclusions of this work the author says: "The

affections that were designated, in 1902, under the name of tabes and general paralysis, are, among syphilitics, of a syphilitic nature, curable by mercurial treatment. This fact has not been recognized: (1) Because mercurial treatment has not been used in these cases regularly and with sufficiently large doses of mercury. (2) Because, like all other lesions of the nervous system, the syphilitic lesions of tabes and general paralysis bring about secondary lesions and their symptoms at first curable become finally permanent. The older the process, the more one observes, other things being equal, symptoms of this character. (3) Because histologists who can sometimes, by microscopical examination, affirm the syphilitic nature of a lesion, have got so they affirm in the name of pathological anatomy that certain lesions are not syphilitic, then that their nature is unknown. Tabes and general paralysis (among syphilitics) are not independent morbid entities, but simply anatomoclinical modalities similarly due to a particular diffusion, a slow evolution of the syphilitic process. Between them and the typical forms of cerebral or spinal syphilis exist all intermediate varieties."

These conclusions are reached after a very careful study of the whole subject from the several standpoints, clinical, pathological, therapeutic. Fournier is criticised and his class of parasyphilitic affections is called artificial. On the general subject of the etiology of both tabes and paresis the author states that it is impossible to state whether these diseases occur only in syphilitics but when they are of syphilitic origin they are of syphilitic nature. In proof of these assertions he cites many cases of both diseases that have been cured by antisyphilitic treatment.

The author's contention certainly has much to commend it and is stated in a careful, conservative manner and illustrated by a wealth of references to literature and to cases both personal and reported. Certainly many of the cases which we are today inclined to feel uncertain about would find here an explanation, more satisfying and more scientific than the *post hoc* method of therapeutics. Particularly is this so of certain cerebral affections which have all the appearances of uncomplicated syphilitic lesions when first seen but which, at a later date, perhaps a year or two afterwards, develop the typical symptoms of paresis. Both the diagnosis of paresis developing long after an initial specific lesion, and retrospective diagnosis of paresis from the beginning are unsatisfying. A similar criticism might be made in regard to those irregular cases of tabes, with perhaps apoplectiform attacks appearing early with subsequent improvement and a stationary period of uncertain duration.

As to treatment the author lays stress on the necessity of using large enough doses of mercury and recommends the hypodermic method of administration.

WM. A. WHITE (Washington, D. C.).

UEBER DIE WIRKUNGEN DER CASTRATION. Von Dr. P. J. MöBIUS. Verlag von Carl Marhold, Halle a. d. s., 1903.

The historical portion of this monograph is very interesting. Castration was practiced quite extensively among the ancients and the literature of this period although not so accurate as one would desire, still is replete with interesting illustrations. As one of the forms of punishment castration was extensively practiced, though probably not so much so as a part of a religious ceremony. Castration for the preservation of the voice is a well known procedure. Its effects upon the human being depend upon the time of the operation, whether before the age of puberty or after. The author describes the changes which occur as a result of this in the male and female and in animals of both sexes. The alterations in the male as in the sexual apparatus, breasts, bones, fatty tissues,

muscles, glands, internal organs and larynx are well set forth. The changes which occur in the skull and cerebellum are very interesting. A number of cases are on record, where unilateral castration produced after a time an atrophy of the opposite cerebellar lobe and a flattening of the cranial bones lying over this part. Bilateral castration produced changes on both sides. As a result of these findings the interesting theory was some time ago advanced that the genital functions are controlled by the cerebellum. The subject of castration is well discussed, and the monograph is worth reading.

T. N. WEISENBURG (Philadelphia).

UEBER DEN PHYSIOLOGISCHEN SCHWACHSINN DES WEIBES. Von Dr. P. J. Möbius. Fünfte veränderte Auflage. Verlag von Carl Marhold in Halle a. S. 1903.

This is the fifth edition of this work. It comprises 123 pages of which the original text only occupies 24 pages, the balance being composed of the prefaces of his previous editions and of the many criticisms which this book has evoked. The author attempts to show that anatomically the brain of the female sex is smaller than the brain of the male, and that therefore her intellectual capacity is correspondingly less. He believes that every woman should be a mother, the latest at the age of twenty-five, and that this is her prime function in life. He does not believe in the advanced education of woman, arguing that as her intelligence increases her maternal instinct correspondingly decreases, with the result that we have a gradual decrease in the number of children, as for instance in France and recently in America.

However this may be, there is no doubt that the number of children born to our so-called "better classes" is smaller than to the poorer classes. How far increased intelligence contributes to this is still a question, for our "better classes" are not always the more intelligent. To the modern woman the question of maternity is a serious one both from the physical and the mental standpoint, for after all it resolves itself to the question of convenience. We have no sympathy with the attempt of the author to place woman on the plain of a mere child-bearing animal. This might perhaps do in the Eastern countries as China and Japan and may even find advocates in Germany, but it will never do in America. Möbius does not believe in the "new woman," the "masculine woman," neither do we, and we are inclined to agree with him that she should be suppressed, but it is evident that Möbius is unacquainted with the American type, or else he would hardly dare offer such advice.

T. N. WEISENBURG.

OSNOVY OUTCHENYA O FUNKTZIACH MORG. V. BECHTEREFF, Fasciculus I., St. Petersburg, 1903. The basic principles of the functions of the brain, by Prof. V. Bechtereff.

This is the first instalment of what promises to be a capital contribution to the literature of brain function, the complete work to consist of 5 or 6 similar parts covering the entire field of our present knowledge of the subject, and forming as it were a continuation of and a complement to the author's well known work on "The Conducting Paths of the Nervous System." Its value is enhanced by the fact that it presents the results of numerous laboratory experiments conducted by the author and his assistants over a period of many years; while at the same time the labors of other investigators are duly appreciated and their importance is unstintingly acknowledged, as far as may be judged from the volume before us. The author found it practicable to treat of the various functions of the brain topographically, namely dealing with this or that portion of the brain in its relation to certain functions. The present issue of some 260 pages is devoted to the treatment of the spinal cord and the medulla



oblongata, to be followed in the next volumes by the functions of the cerebellum, cerebral hemispheres, cortex, etc. The first hundred pages are taken up in an introductory manner by elucidating the various methods of investigation, and the principles of conductivity. This is followed by an exhaustive treatment of the subject of depression to which the author attaches a great deal of weight, and so on. It is, however, impossible in a short book review even to point out the most salient features of this important work, the scientific value of which is fully guaranteed by the high position occupied by the author whose name is not unknown to our neurologists and psychiatrists. A French translation of the work is being issued in Paris simultaneously with its appearance in Russia, and an English version would, I believe, form a welcome addition to the library not only of the specialist but of every physician who interests himself more or less in the subject of brain function.

ROVINSKY (New York).

THE MAN WHO PLEASES AND THE WOMAN WHO CHARMS. By JOHN A. CONE. Hinds and Noble, New York.

It is no doubt an excellent thing to be now and again reminded of the precepts which we learned "at mother's knee" and for this purpose this little volume may serve a useful end. We were not disappointed in it because the author carefully warns us in the preface that there is nothing new in it, and we find no reason to disagree with him. It is distinctly popular in theme and treatment, and science and psychology have no place therein. But as that part of the reading public for whom the book is intended—namely the young and uninformed—are not usually wildly desirous of instruction on the deeper and more psychological side of such a subject, the author displays his wisdom in avoiding such a treatment. The book is on the whole well written and readable, and some of the quotations are well worth remembering.

POPE.

## News and Notes

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THE FRENCH MEDICAL CONGRESS.—The fourteenth French congress of physicians, alienists, and neurologists will be held at Paris from the 1st to the 7th of August next. The following questions will be discussed in order: 1. Psychopathic insanities; 2. Motor localizations in the medulla; 3. Steps to be taken against criminal alienists.

PRESIDENT OF CENTRAL KENTUCKY ASYLUM.—At a meeting of the Board of Commissioners of Central Kentucky Insane Asylum on March 10th, W. H. Newman was elected president for the coming year, and Dr. M. K. Allen was reelected vice-president.

CANADIAN INSTITUTION CHANGES NAME.—The New Brunswick legislature has before it a bill to change the name of the Provincial Lunatic Asylum to the New Brunswick Provincial Hospital for the Cure of Nervous Diseases. The commissioners are authorized to employ two disinterested and competent physicians, who, with the superintendent, shall examine all patients entering and leaving the institution. It is also proposed that even where a certificate of insanity has been granted by two physicians the superintendent may refuse admission if he has doubts, and consult a physician outside of the regular attendants.

REQUESTED APPROPRIATION FOR MARYLAND HOSPITAL.—The authorities of the Springfield (Maryland) Hospital for the Insane are asking for \$100,000 to be applied to buildings, and for \$40,000 as the sum necessary for maintenance.

DR. WEIR MITCHELL IN A NEW RÔLE.—Dr. S. Weir Mitchell is writing for the *Century Magazine* an article entitled, "The Youth of Washington Told in the Form of an Autobiography." An excellent reproduction of a painted portrait of Dr. Mitchell accompanies the first instalment.

LARGE APPROPRIATIONS FOR PSYCHOPATHIC INSTITUTIONS.—In some nine different States of the Union nearly \$1,500,000 is about to be spent for the erection of buildings for the insane. In New York State for this purpose between \$600,000 and \$900,000 are being expended annually. Plans are laid for new institutions at Norwich, Conn.; Allentown, Pa., and Parsons, Kansas. Additions are being made to asylums in Morristown and Harrisburg, Pa.; Spring Grove and Sykesburg, Md.; Dunning and Watertown, Ill.; Lyone View, Tenn.; Hopkinsville, Ky.; San José, Cal.; Eloise, Mich.; Las Vegas, New Mex.; Norfolk, Neb., and Pineville, La.

PROPOSED APPOINTMENT OF SANITARY INSPECTORS FOR ELLIS ISLAND.—In behalf of the New York State Commission in Lunacy a bill was introduced at Albany providing for sanity inspectors at Ellis Island. The purpose is to return all foreigners who through mental incapacity are likely to become a public charge in American institutions. It is said that the U. S. Commissioner of Immigration is in favor of the proposal, and that such permission as is necessary for the establishment of the plan would be readily granted by our general government.

PENNSYLVANIA ASYLUM CONDEMNED.—Dr. G. I. McLeod, secretary of the Pennsylvania State Lunacy Commission, has said that the Schuyl-

kill County Insane Asylum of that State is unfit for use. The buildings are old, dilapidated, and overcrowded, and as many as eight men are obliged to occupy a room 9 by 16 feet. The authorities have refused to take in any more patients, but when sent there by the Court they must be received, and conditions are becoming worse.

STATE HOME FOR EPILEPTICS IN TEXAS.—A magnificent institution provided by the State of Texas for her epileptic charges has been formally opened at Abilene in that State. It is built on the cottage plan, and has accommodations for 250 patients. Dr. John Preston, formerly superintendent at the State Asylum in Austin, is in charge. The legislature has appropriated \$250,000 for carrying on the work, a sum greater than is provided for by any other State save New York. Epileptics now cared for in three State asylums, at Austin, San Antonio, and Terrell, will be transferred. Those still in homes or jails will be taken in later, in order of application.

DR. ERCOLE PUSATERI, privat-docent in the Faculty of Medicine at Pavia, has been appointed privat-docent of psychiatry at Palermo.

The following were appointed privat-docent at Parma: Drs. Francesco Marino (neurology and psychiatry) and Giuseppi Felice Gardenghi (hygiene).

APPOINTMENT OF DR. MABON.—Dr. William Mabon has been appointed President of the State Commission in Lunacy of New York State. In our April number we announced the appointment of Dr. Pilgrim, but we have since learned that Dr. Pilgrim declined. Dr. Mabon is too well known to need introduction to our readers. The State of New York has been particularly fortunate in the appointment of so able a man, who has the ability and power to carry on the splendid work begun by Dr. Peterson.



THE  
Journal  
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Original Articles

ANNIVERSARY NUMBER OF THE PHILADELPHIA NEUROLOGICAL  
SOCIETY.

NEUROLOGY IN PHILADELPHIA FROM 1874 TO 1904.<sup>1</sup>

BY CHAS. K. MILLS, M.D., OF PHILADELPHIA,  
PROFESSOR OF NEUROLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

I have been asked to respond to the toast, Neurology in Philadelphia, and in order to give definite scope to my remarks I have concluded to glance at neurological progress in this city since 1874; in other words, during the last three decades. The last quarter of the nineteenth century, which is included in this period, probably covers the era of the greatest advance in neurology the world over.

Ten years before the period chosen for review, in 1864, Dr. J. Hughlings Jackson had made the suggestion that movements of various parts of the body were controlled by special convolutions. In 1868 he first applied the principles of evolution and dissolution to the study of language. In 1870 were published the first of the series of great researches on the physiology of the brain by Hitzig and Fritsch. It is a source of gratification to know that Hitzig is still living and working at Halle. The lustrum from 1870 to 1875 was filled with achievements notable both in performance and in promise. Ferrier was pursuing his experimentations on the brains of monkeys, his first memoir being published in the

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<sup>1</sup>The twentieth anniversary of the founding of the Philadelphia Neurological Society was celebrated Jan., 1904. The papers appearing in this number of the JOURNAL were prepared for that occasion.

Proceedings of the Royal Society in 1875. In 1874, Putnam, of Boston, with the assistance of Bowditch and James, had experimented with faradic currents on the cerebral cortex and subcortex. In the same year Mathias Duval published his monograph on hypnotism in the *Nouveau Dictionnaire*. Between 1875 and 1880 Charcot and his assistants opened a new era in the history of hypnotism by a series of investigations which were divided between scientific and spectacular interest. Important pathological researches were under way, especially in Paris and in Vienna, and the fever of experimentation and investigation was spreading everywhere.

Prior to 1874 practically the only Philadelphia name appearing in the literature of neurology is that of S. Weir Mitchell, if we except the names of Keen and Morehouse, who wrote in collaboration with him in several publications. Besides his work on injuries of nerves and his well-known researches on the physiology of the cerebellum, Mitchell published between 1864 and 1874 a number of important contributions to neurology, among others, papers on malingering, peripheral paralyses, local neuralgias, lithium bromide, arrest of nail growth in hemiplegias, and painful affections of the feet.

The era of specialties might be said to have begun in Philadelphia about 1870, although a stray specialist had been heard of before that period. In 1871 Dr. H. C. Wood was appointed lecturer on nervous diseases in the University of Pennsylvania, this being the first lectureship on neurology in Philadelphia, although lectures on insanity had been delivered by Rush at the University of Pennsylvania about the beginning of the century, and by Ray at the Jefferson Medical College from 1870 to 1872. This will be as good a place as any to glance at the progress of neurology in Philadelphia as illustrated by the creation of the more important teaching positions in the medical colleges. The University of Pennsylvania removed to its present grounds in West Philadelphia in September, 1872, and shortly after this, in 1873, Dr. Wood's lectureship on nervous diseases was made a clinical professorship. In 1893 the writer was elected Professor of Mental Diseases and of Medical Jurisprudence in

the University of Pennsylvania, having previously held lectureships on electrotherapeutics and on mental and nervous diseases in the same institution. Dr. Wood having resigned the chair, the writer in 1901 was chosen Clinical Professor of Nervous Diseases, Dr. William G. Spiller being at the same time appointed Assistant Clinical Professor. In 1903 the titles of these chairs were changed respectively to Professor of Neurology and Associate Professor of Neurology, and in the same year Dr. Spiller was appointed Professor of Neuropathology. In 1901 Dr. C. W. Burr was made Professor of Mental Diseases in the University of Pennsylvania. Dr. F. X. Dercum was appointed Clinical Professor of Nervous Diseases in the Jefferson Medical College in 1892, the position later being changed to that of Professor of Nervous and Mental Diseases. In 1891 Dr. Samuel Wolfe was appointed Clinical Professor of Nervous Diseases in the Medico-Chirurgical College. He was succeeded in 1894 by Dr. C. W. Burr, who resigned in 1900, when Dr. F. Savary Pearce was chosen to fill the position. When the Philadelphia Polyclinic was founded in 1882 the writer was made Professor of Nervous Diseases, and continued in this position until 1898, when Dr. Spiller succeeded him. Others who have held professorial positions in connection with the neurological department of the Polyclinic Hospital are Drs. S. Weir Mitchell, Wharton Sinkler, and C. W. Burr. In the Woman's Medical College of Pennsylvania the writer first held a lectureship and afterwards beginning with 1891, a professorship of nervous diseases, in which latter position he was succeeded by Dr. Spiller in 1901.

For many years instruction in neurology at the University of Pennsylvania was limited to one clinical lecture weekly on nervous diseases during the college session. Beginning about 1893 an additional clinical lecture on either mental or nervous diseases was delivered weekly at the Philadelphia Hospital during the first term of the session, that is, from October to January, inclusive. Recently the instruction has been considerably enlarged, so that now one clinical lecture is delivered weekly at the University Hospital during the entire session and one at the Philadelphia Hospital during



half the session. The Professor of Mental Diseases also delivers one clinical lecture, illustrated with cases drawn from the insane department of the Philadelphia Hospital, once a week during the first half of the session. The third year class receives one hour and a half instruction weekly in neuropathology from the Professor and his assistants. Ward class instruction is given to the fourth year class during one-half of the year both in the University and in the Philadelphia Hospital. The class is divided into small sections so as to give each student the opportunity to personally investigate the cases under the supervision of the instructors.

Formerly only one clinical lecture a week on nervous diseases was delivered at the Jefferson Medical College, but the course has recently been extended, and now includes one clinical and one didactic lecture weekly by the Professor, two clinical demonstrations in nervous diseases and one in mental diseases weekly by the instructors, and one demonstration weekly in neuropathology and one in electrotherapeutics.

At the Medico-Chirurgical College two lectures on nervous diseases are given weekly to the third year class and one to the fourth year class. In addition, ward classes receive instruction twice every week.

At the Philadelphia Polyclinic postgraduate students are given practical instruction in nervous diseases in connection with the outdoor and indoor services, the former of which is rich in clinical material and is especially used for this purpose.

In the Woman's Medical College of Pennsylvania a course of clinical lectures is delivered annually, usually at the Woman's Hospital or at the Philadelphia Hospital.

Systematic laboratory work in neurology dates back only a few years to the time of the establishment of the William Pepper Laboratory of Clinical Medicine in connection with the University of Pennsylvania (December 4, 1895), although previous to this time, as stated elsewhere, some valuable laboratory work in the physiology and therapeutics of neurology had been done by S. Weir Mitchell, H. C. Wood, Ott, Reichert, and others. Consultation of the three volumes of contributions from the Laboratory so far published shows that neurological research has held a large place in its work. Papers of great value, the

result of work done in the Laboratory, have been published by Spiller, McCarthy, Ravenel, and others.

The new medical laboratories of the University of Pennsylvania, to be dedicated in the coming June, and which will be the finest medical laboratories in this country, will include a large and well-equipped neurological laboratory for the use of under-graduates.

A neurological laboratory was established in the Philadelphia Polyclinic in 1896, and published one valuable report or bulletin under the supervision of Dr. A. O. J. Kelly, containing, among other papers of value, one on "Lesions of the Brain Found in a Case of Acute Yellow Atrophy of the Liver," by Drs. C. W. Burr and A. O. J. Kelly, and a contribution on a "Case of Primary Combined Column Disease," by Dr. J. H. W. Rhein. The late Dr. T. S. Kirkbride, Jr., had made elaborate plans for pathological laboratories at the Polyclinic, including a continuation and expansion of the neurological laboratory, but his untimely death has caused the project for a time at least to be laid aside.

At the Jefferson Medical College, in connection with the general pathological laboratory, is a department of neuropathology which is conjointly under the supervision of the Professor of Pathology and the Professor of Nervous and Mental Diseases. Some researches of value have already come from this laboratory, including a paper on "Subacute Combined Degeneration of the Spinal Cord, with Pernicious Anemia," by Dr. William Pickett, and another, about to be published, by Dr. Alfred Gordon, on the microscopical study of the spinal cord in a case of Pott's disease, in which the cord was free in the spinal canal. Dr. William Pickett is the instructor in neuropathology.

The history of neurology in Philadelphia during the last thirty years could not be written without a consideration of the part played by the Orthopedic Hospital and Infirmary for Nervous Diseases, by the Neurological Department of the Philadelphia Hospital, and by the Society whose twentieth anniversary is commemorated here this evening.

The Orthopedic Hospital was established in October, 1867, at 15 S. Ninth Street, in rooms over the well-known instru-

ment shop of Kolbe. Its neurological department, designated as the Infirmary for Nervous Diseases, was opened in 1870, with Dr. S. Weir Mitchell in charge, and Dr. Wharton Sinkler and others as assistants. The Hospital was removed to its present location, the northwest corner of Seventeenth and Summer Streets, in February, 1872. It was first enlarged in 1887, and extensive additions made in 1903-4. The records show from December, 1870, to January 1, 1872, a period of one year and one month, an attendance of 169 out-patients, while in 1903 the number had increased to 874 new cases and 3,261 revisits. Five surgical patients were treated indoors in 1868, and in 1874 forty-five cases of nervous diseases, while in 1903 the number was 251. In 1870 the number of beds was ten and in 1904 122 beds, including private rooms. The out-patient service has always been open, under proper regulations, to students, and much valuable teaching has been given at the Hospital by Dr. S. Weir Mitchell, Dr. Wharton Sinkler, Dr. Morris J. Lewis, Dr. J. K. Mitchell, and others. Neurological literature has been greatly enriched through work done at this infirmary for nervous diseases.

The nervous wards of the Philadelphia Hospital were founded by the writer in 1877. In volume V. of the Philadelphia Hospital Reports, 1902, a history of these wards is given by Drs. T. H. Weisenburg and D. J. McCarthy. The number of patients accommodated in them has grown from 35 in 1878 to 326 in 1901. Since 1887 the neurologists of the Hospital have had access to the insane department as consultants and for purposes of scientific investigation. In the list of those who have acted as physicians to the nervous wards appear the names of Drs. Woods, Bartholow, Dercum, Lloyd, Sinkler, Burr, Pearce, Spiller and Potts, all names identified with the history of neurology in this city, while in the list of assistant physicians and registrars are to be found those whose work is such as to give promise of high position in the future.

Drs. Weisenburg and McCarthy give an interesting account of the teaching of neurology at the Philadelphia Hospital from 1878 to 1902, this showing that advantage has been fully taken of the great opportunities afforded by both the nervous wards



and the insane department for clinical demonstrations and ward and bedside instruction. The courses given included not only instruction in nervous diseases and in insanity, but also in the jurisprudence of these subjects. During the last twenty-five years hundreds of students, drawn from all the medical institutions of Philadelphia, have availed themselves of the opportunities afforded by this department, from which many of the most important contributions to the literature of American neurology have come.

Several physicians met in the office of the writer, in November, 1883, to talk over the matter of forming a local neurological society, and a little later a call was issued to members of the profession requesting a meeting of those interested in forming the Philadelphia Neurological Society, those signing the call being Drs. Sinkler, Dercum, Eskridge, and Mills. In response to this call the first formal meeting of the Society was held in the College of Physicians, December 13, 1883. Dr. I. N. Kerlin was made chairman and Dr. Eskridge temporary secretary. Drs. Mills, Chase, Eskridge, Brubaker and Sinkler were appointed a committee on organization, and at a meeting held January 28, 1884, Drs. Sinkler, Jones and Eskridge were elected councillors. Dr. James Hendrie Lloyd, who was also one of the organizers of the Society, was elected the first permanent Secretary. Dr. S. Weir Mitchell was made the first President of the Society, holding the position for several years. The following is a list of the Presidents of the Society during the twenty years of its existence:

Dr. S. Weir Mitchell, 1884-1890; Dr. H. C. Wood, 1890-1892; Dr. F. X. Dercum, 1892-1893; Dr. Charles K. Mills, 1893-1894; Dr. Wharton Sinkler, 1894-1895; Dr. James Hendrie Lloyd, 1895-1896; Dr. Charles K. Mills, 1896-1897; Dr. Charles W. Burr, 1897-1898; Dr. F. X. Dercum, 1898-1899; Dr. James Hendrie Lloyd, 1899-1900; Dr. William G. Spiller, 1900-1901; Dr. James Tyson, 1901-1902; Dr. J. K. Mitchell, 1902-1903; and Dr. H. A. Hare, 1903-1904.

A few words might appropriately here be said about Dr. Eskridge, who died recently, January 17, 1902. He was one of the most active spirits in the organization of our Society, and doubtless would have taken a continuous and meritorious

part in its proceedings had not ill health compelled him to leave Philadelphia in 1884, less than a year after its organization. Although not able to be present, he never ceased to be interested in the Society, and on several occasions contributed through others to its proceedings. I shall pass over all reference to positions and work except in so far as these relate to his connection with neurology. During his short stay in Philadelphia he wrote many valuable neurological papers, most of which were contributed to the proceedings of local societies like the County Medical Society and the College of Physicians. He was instructor in nervous diseases in the postgraduate course of the Jefferson Medical College about 1883. He was elected a member of the neurological staff of the Philadelphia Hospital, but did not accept the position, leaving the city soon after his election. Shortly after going to Colorado, although his health was not fully restored, his medical work was resumed. He soon restricted his work to neurology, and may truly be said to have been the pioneer of scientific neurology in the far West. His contributions to neurology, published in Western as well as in Eastern journals, were numerous and valuable, especially notable being his papers on aphasia and on various phases of cerebral localization.

During the twenty years of the existence of the Philadelphia Neurological Society 616 contributions to its proceedings have been made. The presentation of a list of these contributions would probably serve no useful purpose except to show the interest and industry which have characterized the Society during its life of two decades. A tabular analysis of these contributions may be of some value as giving a general idea of the work done. A list of the contributions was prepared under my direction by Dr. J. W. McConnell and Dr. T. H. Weisenburg. I have found it somewhat difficult to group these contributions under a few heads, but with the list before me and with a personal knowledge of the work of the Society, from whose meetings I have been absent less than a dozen times since its foundation, I have arranged these contributions to the proceedings under the four heads of (1) formal papers; (2) minor scientific contributions; (3) cases reported and patients presented; and (4) pathological specimens and special

pathological reports. Under formal papers have been classed all contributions important in their quality or length or in both; under minor scientific contributions have been included notes on special matters often of much value, such as those referring to new instruments or methods of investigation, new drugs or therapeutic measures, and new observations in symptomatology; under cases reported and patients presented have been grouped not only patients actually presented to the Society, but also cases and sets of cases reported from time to time without presentation of the patients; and under pathological specimens and special pathological reports have, of course, been classed the numerous specimens with and without special reports so frequently exhibited at the meetings of the Society. Thus classified, the 616 contributions to the Society's proceedings during the twenty years have been as follows: Formal papers, 244; minor scientific contributions, 39; cases reported and patients presented, 229; and pathological specimens and special pathological reports, 104; total, 616.

A study of this wealth of material shows that scarcely anything has been brought before the Society which has not had some interest, and that some articles of great importance, and a few that may be classed as among the most valuable contributions to neurology during the last twenty years are to be found. During the twenty years about 140 meetings of the Society have been held, so that the average number of contributions at each meeting would be between four and five.

It is difficult to single out particular contributions from a Society's proceedings of two decades for special mention, but a few of the most important of these are S. Weir Mitchell's edema in hysterical hemiplegia (1884); Dercum and Parker's paper on the artificial production of a hysterical state with convulsive manifestations (1884); the nuclear anatomy of the nerves which supply the muscles of the eyeball, by E. C. Spitzka (1888); Lloyd's traumatic affections of the cervical region of the spinal cord simulating syringomyelia (1894); a case of merycismus, by Riesman (1895); experimental lesions of the cortical tissues of the rabbit's brain induced by alcoholic poisoning, by Berkley (1896); gliosis cerebri, by Sailer (1897); J. K. Mitchell's headache with visual hallucinations



(1897); the report by E. Lindon Mellus of original investigations on motor tracts in the brain and cord (1898); and Spiller's Pepper Laboratory contribution on a case of amyotrophic lateral sclerosis showing the extent of the motor cortex in man (1899).

The value of a local society is not to be measured alone by the articles of unusual worth contributed to its proceedings, but also by the stimulus which results from bringing together at stated intervals those who are interested in the same line of work. Neurologists in charge of outdoor services or of hospital wards, their associates, assistants and internes are given the opportunity to present cases and specimens for consideration. Often these would be entirely passed by if it were not for such opportunity, and more elaborate and important work is thus often suggested, while personal association brings about good feeling.

While the work of the Philadelphia Neurological Society shows that many of the most important contributions to neurology, coming from Philadelphia, have been through its medium, these, regarded from the standpoint of the permanent value of the work, have been even greater through other channels. When the writer was elected a member of the American Neurological Association in 1881, up to that time only two or three members of the Association had come from Philadelphia. The number gradually increased until now it is twelve. Contributions from Philadelphians to the proceedings of this Association have also continuously increased in number and value. In addition, Philadelphia neurological work will be found especially in the proceedings of the section of neurology of the American Medical Association, in the *Transactions of the College of Physicians of Philadelphia*, in the *Philadelphia Hospital Reports*, in the *JOURNAL OF NERVOUS AND MENTAL DISEASE*, in the *American Journal of the Medical Sciences*, in *Brain*, in the *Medical News*, and in the *Philadelphia Medical Journal*.

These contributions during the last thirty years can be classified under four heads, (1) studies in functional nervous diseases and especially in their methods of treatment: (2) clinicopathological observations and investigations: (3) ana-

tomical and physiological researches; and (4) the applications of neurology to surgery.

As regards the study and treatment of functional nervous diseases, the work of S. Weir Mitchell, and especially his development of the method of treatment by rest, isolation and full feeding and the use of massage and electricity deservedly hold highest rank. Dr. Mitchell's first writings on this subject were published as early as 1873 and 1875. His monograph entitled "Fat and Blood," in which the rest treatment was first crystallized in book form, was published in 1877. Lloyd's contributions to the study of hysteria, the investigations of Dr. J. K. Mitchell as to the effect of massage on the quality of the blood, Sinkler's papers on the rest treatment, and Dercum's contributions to the therapeutics of neurasthenia, hysteria, and mental disorders, especially those contained in his recent work on *Rest, Mental Therapeutics and Suggestion*, call for the fullest recognition in this résumé.

With regard to anatomical and physiological research it may be said that, although in a relatively limited field, this has been of great value. A work which should not be overlooked is one published after the death of its author, under the auspices of the Academy of Natural Sciences of Philadelphia (1896), "The Morphology of the Cerebral Convolution with Especial Reference to the Order of Primates," by Dr. Andrew J. Parker, containing the results of close study of the brain and suggestions of a highly original character. The work was begun as early as 1877; it was awarded the Boylston prize in 1890.

In reviewing physiological research a tribute should be paid the teacher and investigator, Dr. H. C. Wood, the second President of the Philadelphia Neurological Society. A pamphlet of twenty-four pages is required to cover his bibliographic record of 268 publications between the years 1860 and 1900. Not a few of these have neurological interest, as, for instance, many of those on the action of drugs. Most notable are his various studies of the phenomena of fever published as Smithsonian contributions between 1875 and 1880.

Dr. Isaac Ott, a member of the Philadelphia Neurological Society, although living in Easton, Pa., taught and worked so

long in our midst as to give Philadelphia a claim upon his productions. He has contributed to our knowledge of antipyretics and of brain physiology, his researches on thermic, vasomotor and polypneic centers being especially noteworthy. The investigations of Reichert in the fields of pure physiology and physiological therapeutics should not be passed by in this enumeration.

Among important Philadelphia contributions to neurology since 1874, not already alluded to, are Mitchell's papers on erythromelalgia, H. C. Wood's contributions on nervous syphilis, Sinkler's reports on syringomyelia with autopsy, and his articles on poliomyelitis; Dercum's studies of adiposis dolorosa; Lloyd's papers on syringomyelia and his articles in the *Twentieth Century Practice of Medicine* on diseases of the cerebrospinal and sympathetic nerves; J. K. Mitchell's monograph on the remote effects of injuries of nerves; Burr's paper on changes in the spinal cord in pernicious anemia; McCarthy's contributions to the study of iron infiltration in the ganglion cells, and on forced movements due to cellular degeneration of the cerebellum following rattlesnake poisoning, and his investigations of meningeal melanosis and of hydrophobia with Ravenel; Pearce and McCarthy's paper on the anatomy of the median fillet; and Weisenburg's paper on uremic hemiplegia with changes in the nerve cells of the brain and cord, and primary degeneration of the central motor tract. Here should also be included Spiller's description of his direct ventrolateral pyramidal tract, and his paper on the muscular dystrophies. This indefatigable worker has published since 1895, either alone or in collaboration with others, more than eighty neurological papers, and not one without value.

The writer might perhaps be permitted to refer here to his own contributions to cerebral localization, aphasia, brain tumors, and progressively developing hemiplegia.

Among formal works published by Philadelphians since 1875 should be mentioned Mitchell's "Injuries to Nerves" and his "Lectures on Nervous Diseases in Women"; "Nervous Diseases and Their Diagnosis," by Wood; the "Textbook on Nervous Diseases by American Authors," edited by Dercum;



the recent work by the same author on "Rest, Mental Therapeutics and Suggestion," and the writer's work on "Diseases of the Brain and Cranial Nerves." Potts has furnished an excellent student's manual of nervous and mental diseases, and has in course of advanced preparation another on electrotherapeutics.

Philadelphia and the Philadelphia Neurological Society have not been behindhand in contributions to psychiatry, as is evidenced by Wilmarth's "Researches on the Morphology and Pathology of Idiocy," by Chapin's "Textbook on Insanity," by the recent monograph of Chase on "General Paralysis of the Insane," and by Barr's clinical contributions to the study of idiocy. In this connection should also be enumerated the papers of Dr. Alice Bennett on "Cardiac and Renal Disease in their Relations to Insanity," those of Brush and Moulton on the "Treatment of Insanity with Thyroid Extract," Pickett's clinical studies of mental disease, and especially his paper on dementia præcox, and the contributions of Dunton to the same subject. Lightner Witmer's "Practical Manual on Analytical Psychology" is one of the best works of its class, and from its neurological bearings should be included in our list.

The applications of neurology to surgery have received exemplification in work done in Philadelphia, as illustrated by the contributions of Keen on the surgical treatment of spasmodic torticollis and on Gasserian operations, the papers of Spiller and Frazier on division of the sensory root of the trigeminus for the relief of tic douloureux, and those of DaCosta on the application of surgery both in neurology and in insanity. Philadelphia surgeons and neurologists working together have done much toward developing rapid and efficient methods of operation in cases of brain tumor.

The inter-relations of neurology and ophthalmology have received in Philadelphia much attention, especially from Thomson, who early studied eye strain in its bearings on nervous phenomena; from Risley and Randall, in similar lines; through Oliver's ophthalmoscopic studies of the brains of the epileptic and insane, through Posey's work on some of the relations of the eye to nervous diseases, and especially through the work of

de Schweinitz. In addition to his book on toxic amblyopias, the neurologico-ophthalmological contributions of de Schweinitz since 1887 number at least a score, including some particularly noteworthy, as examinations of the eyes of cases of chorea in childhood, headache associated with unusual visual phenomena, hysterical anesthesia with study of the fields of vision (in collaboration with Dr. J. K. Mitchell), his papers on hemianopsia and his various studies on the ocular neuromuscular mechanism.

I might say here in passing that the debt of Philadelphia neurologists to their ophthalmological brethren cannot be paid simply by a reference to the publications of the latter. How often neurological diagnosis has been helped or corrected by the ophthalmologist's records of careful and accurate ophthalmoscopic examinations can only be appreciated by those who have experienced their value.

Philadelphia has contributed her share to the study of reflexes and allied phenomena. We owe the chin-jerk to Lewis, important studies on the supraorbital reflex to McCarthy, on the lachrymal reflex to Spiller, and on the infraspinal reflex to Gordon. Pickett has compassed the reflexes of the shoulder girdle, Sinkler has contributed the toe-jerk, and Mitchell has given amidstships the best exposition of the cremasteric reflex.

Mitchell and Lewis, Hinsdale and Reichert, have supplied us with apparatus for measuring and recording normal and abnormal sway, Massey new electrical methods and appliances, and Madison Taylor the best hammer for tapping the much-abused patellar ligament.

To Hinsdale, Eshner, Pearce, Bochroch, McConnell and many others of its faithful members the Philadelphia Neurological Society has been indebted for reports of cases and other clinical contributions of much interest and value.

The Philadelphia Neurological Society and neurology in general owe much to the support and encouragement received from distinguished men of the medical profession, like Dr. J. C. Wilson, Professor of the Practice of Medicine and of Clinical Medicine in the Jefferson Medical College; Dr. James Tyson, one of our former Presidents and the Professor of Medicine in the

University of Pennsylvania, and Dr. Hobart A. Hare, the retiring President. Either alone or in collaboration, Dr. Hare has contributed valuable researches in physiological therapeutics and numerous therapeutic or clinical contributions of a neurological character. These men, while not confining themselves to neurological investigation or practice, have not only contributed much of value to neurological literature, but have done much to advance the position of neurology in hospitals, teaching institutions, and in the community.

I have endeavored to give some idea of the status of Philadelphia neurology during the last three decades, and also to indicate those to whom we are chiefly indebted for the standing of our city in the development of this great specialty of medicine. My references and allusions have been largely to the work of those who have reached or passed the fourth decade of life, but the younger members of our Society have done their share of work. The hope of neurology in the future, as of everything else, must be based on what is promised or what is to be expected from our more youthful confrères.

In conclusion I may perhaps attempt a forecast of the centennial of this Society in 1984. What will the postprandial speaker recount on that occasion? Sclerosis will then have ceased to be the reproach of our neurological therapeutics; an antitoxin of certain virtue will have supplanted mercury and the iodides; neurasthenia will be no more, and even the rest treatment of Mitchell will have given place to some great prophylactic measure which will prevent all the world from getting tired; the chemistry of the brain will then have unraveled mysteries of structure and function which now baffle research; some Philadelphia Golgi will have discovered a new and all-revealing stain, the secrets of the nucleolus will be laid bare, and the primitive fibrils traced from source to terminus as easily as the histologist now takes account of the columns of Goll or the comma-shaped tract. With the courtesy of their kind, the neurologists of that day may recount our doings, but with a strain of sympathetic compassion that bespeaks our relative insignificance.



## THE EVOLUTION OF THE REST TREATMENT

BY S. WEIR MITCHELL, M.D., LL.D., OF PHILADELPHIA.

I have been asked to come here to-night to speak to you on some subject connected with nervous disease. I had hoped to have had ready a fitting paper for so notable an occasion, but have been prevented by public engagements and private business so as to make it quite impossible. I have, therefore, been driven to ask whether it would be agreeable if I should speak in regard to the mode in which the treatment of disease by rest was evolved. This being favorably received, I am here this evening to say a few words on that subject.

You all know full well that the art of cure rests upon a number of sciences, and that what we do in medicine, we cannot always explain, and that our methods are far from having the accuracy involved in the term scientific. Very often, however, it is found that what comes to us through some accident or popular use and proves of value, is defensible in the end by scientific explanatory research. This was the case as regards the treatment I shall briefly consider for you to-night.

The first indication I ever had of the great value of mere rest in disease, was during the Civil War, when there fell into the hands of Doctors Morehouse, Keen and myself, a great many cases of what we called acute exhaustion. These were men, who, being tired by much marching, gave out suddenly at the end of some unusual exertion, and remained for weeks, perhaps months, in a pitiâble state of what we should call today, Neurasthenia. In these war cases, it came on with strange abruptness. It was more extreme and also more certainly curable than are most of the graver male cases which now we are called on to treat.

I have seen nothing exactly like it in civil experience, but the combination of malaria, excessive exertion, and exposure provided cases such as no one sees today. Complete rest and plentiful diet usually brought these men up again and in many instances enabled them to return to the front.

In 1872 I had charge of a man who had locomotor ataxia with extreme pain in the extremities, and while making some

unusual exertion, he broke his right thigh. This confined him to his bed for three months, and the day he got up, he broke his left thigh. This involved another three months of rest. At the end of that time he confessed with satisfaction that his ataxia was better, and that he was, as he remained thereafter, free from pain. **I learned from this, and two other cases,** that in ataxia the bones are brittle, and I learned also that rest in bed is valuable in a proportion of such cases. You may perceive that my attention was thus twice drawn towards the fact that mere rest had certain therapeutic values.

In 1874 Mrs. G., of B——, Maine, came to see me in the month of January. I have described her case elsewhere, so that it is needless to go into detail here, except to say that she was a lady of ample means, with no special troubles or annoyances, but completely exhausted by having had children in rapid succession and from having undertaken to do charitable and other work to an extent far beyond her strength. When first I saw this tall woman, large, gaunt, weighing under a hundred pounds, her complexion pale and acneous, and heard her story, I was for a time in a state of such therapeutic despair as usually fell upon physicians of that day when called upon to treat such cases. She had been to Spas, to physicians of the utmost eminence, passed through the hands of gynecologists, worn spinal supporters, and taken every tonic known to the books. When I saw her she was unable to walk up stairs. Her exercise was limited to moving feebly up and down her room, a dozen times a day. She slept little and, being very intelligent, felt deeply her inability to read or write. Any such use of the eyes caused headache and nausea. Conversation tired her, and she had by degrees accepted a life of isolation. She was able partially to digest and retain her meals if she lay down in a noiseless and darkened room. Any disturbance or the least excitement, in short, any effort, caused nausea and immediate rejection of her meal. With care she could retain enough food to preserve her life and hardly to do more. Anemia, which we had then no accurate means of measuring, had been met by half a dozen forms of iron, all of which were said to produce headache, and generally to disagree with her. Naturally enough, her case

had been pronounced to be hysteria, but calling names may relieve a doctor and comfort him in failure, but does not always assist the patient, and to my mind there was more of a general condition of nervous excitability due to the extreme of weakness than I should have been satisfied to label with the apologetic label hysteria.

I sat beside this woman day after day, hearing her pitiful story, and distressed that a woman, young, once handsome, and with every means of enjoyment in life should be condemned to what she had been told was a state of hopeless invalidism. After my third or fourth visit, with a deep sense that everything had been done for her that able men could with reason suggest, and many things which reason never could have suggested, she said to me that I appeared to have nothing to offer which had not been tried over and over again. I asked her for another day before she gave up the hope which had brought her to me. The night brought counsel. The following morning I said to her, if you are at rest you appear to digest your meals better. "Yes," she said, "I have been told that on that account I ought to lie in bed. It has been tried, but when I remain in bed for a few days, I lose all appetite, have intense constipation, and get up feeling weaker than when I went to bed. Please do not ask me to go to bed." Nevertheless, I did, and a week in bed justified her statements. She threw up her meals undigested, and was manifestly worse for my experiment. Sometimes the emesis was mere regurgitation, sometimes there was nausea and violent straining, with consequent extreme exhaustion. She declared that unless she had the small exercise of walking up and down her room, she was infallibly worse. I was here between two difficulties. That she needed rest I saw, that she required some form of exercise I also saw. How could I unite the two?

As I sat beside her, with a keen sense of defeat, it suddenly occurred to me that some time before, I had seen a man, known as a layer on of hands, use very rough rubbing for a gentleman who was in a state of general paresis. Mr. S. had asked me if I objected to this man rubbing him. I said no, and that I should like to see him do so, as he had



relieved, to my knowledge, cases of rheumatic stiffness. I was present at two sittings and saw this man rub my patient. He kept him sitting in a chair at the time and was very rough and violent like the quacks now known as osteopaths. I told him he had injured my patient by his extreme roughness, and that if he rubbed him at all he must be more gentle. He took the hint and as a result there was every time a notable but temporary gain. Struck with this, I tried to have rubbing used on spinal cases, but those who tried to do the work were inefficient, and I made no constant use of it. It remained, however, on my mind, and recurred to me as I sat beside this wreck of a useful and once vigorous woman. The thought was fertile. I asked myself why rubbing might not prove competent to do for the muscles and tardy circulation what voluntary exercise does. I said to myself, this may be exercise without exertion, and wondered why I had not long before had this pregnant view of the matter.

Suffice it to say that I brought a young woman to Mrs. G.'s bedside and told her how I thought she ought to be rubbed. The girl was clever, and developed talent in that direction, and afterwards became the first of that great number of people who have since made a livelihood by massage. I watched the rubbing two or three times, giving instructions, in fact developing out of the clumsy massage I had seen, the manual of a therapeutic means, at that time entirely new to me. A few days later I fell upon the idea of giving electric passive exercise and cautiously added this second agency. Meanwhile, as she had always done best when secluded, I insisted on entire rest and shut out friends, relatives, books and letters. I had some faith that I should succeed. In ten days I was sure. The woman had found a new tonic, hope, and blossomed like a rose. Her symptoms passed away one by one. I was soon able to add to her diet, to feed her between meals, to give her malt daily, and, after a time, to conceal in it full doses of pyro-phosphates of iron. First, then, I had found two means which enabled me to use rest in bed without causing the injurious effects of unassisted rest; secondly, I had discovered that massage was a tonic of extraordinary value; thirdly, I had learned that with this combination of seclusion, massage and

electricity, I could overfeed the patient until I had brought her into a state of entire health. I learned later the care which had to be exercised in getting these patients out of bed. But this does not concern us now. In two months she gained forty pounds and was a cheerful, blooming woman, fit to do as she pleased. She has remained, save for time's ravage, what I made her.

It may strike you as interesting that for a while I was not fully aware of the enormous value of a therapeutic discovery which employed no new agents, but owed its usefulness to a combination of means more or less well known.

Simple rest as a treatment had been suggested, but not in this class of cases. Massage has a long history. Used, I think, as a luxury by the Orientals for ages, it was employed by Ling in 1813. It never attained perfection in the hands of the Swedes, nor do they to-day understand the proper use of this agent. It was over and over recognized in Germany, but never generally accepted. In France, at a later period, Dreyfus, in 1841, wrote upon it and advised its use, as did Recamier and Lainé in 1868. Two at least of these authors thought it useful as a general agent, but no one seems to have accepted their views, nor was its value as a tonic spoken of in the books on therapeutics or recommended in any text-book as a powerful toning agent. It was used here in the Rest Treatment, and this, I think, gave it vogue and caused the familiar use of this invaluable therapeutic measure.

A word before I close. My first case left me in May, 1874, and shortly afterwards I began to employ the same method in other cases, being careful to choose only those which seemed best suited to it. My first mention in print of the treatment was in 1875, in the Sequin Lectures, Vol. I., No. 4, "Rest in the Treatment of Disease." In that paper I first described Mrs. G.'s case. My second paper was in 1877, an address before the Medico-Chirurgical Faculty of Maryland, and the same year I printed my book on "Rest Treatment." The one mistake in the book was the title. I was, however, so impressed at the time by the extraordinary gain in flesh and blood under this treatment that I made it too prominent in the title of the book. Let me say that for a long time the new treat-

ment was received with the utmost incredulity. When I spoke in my papers of the people who had gained half a pound a day or more, my results were questioned and ridiculed in this city as approaching charlatanism. At a later date in England some physicians were equally wanting in foresight and courtesy. It seems incredible that any man who was a member of the British Medical Association could have said that he would rather see his patients not get well than have them cured by such a method as that. It was several years before it was taken up by Professor Goodell, and it was a longer time in making its way in Europe when by mere accident it came to be first used by Professor William Playfair.

I suffered keenly at the time from this unfair criticism, as any sensitive man must have done, for some who were eminent in the profession said of it and of me things which were most inconsiderate. Over and over in consultation it was rejected with ill-concealed scorn. I made no reply to my critics. I knew that time would justify me; I have added a long since accepted means of helping those whom before my day few helped. This is a sufficient reward for silence, patience and self-faith. I fancy that there are in this room many who have profited for themselves and their patients by the thought which evolved the Rest Treatment as I sat by the bedside of my first rest case in 1874. Playfair said of it at the British Association that he had nothing to add to it and nothing to omit, and to this day no one has differed as to his verdict.

How fully the use of massage has been justified by the later scientific studies of Lauder Brunton, myself, and others you all know. It is one of the most scientific of remedial methods.



## THE METAPHYSICAL CONCEPTION OF INSANITY

BY JAMES HENDRIE LLOYD, A.M., M.D., OF PHILADELPHIA.

By the metaphysical conception of insanity I understand that view which regards insanity as a manifestation of disordered mental functions apart from any consideration of disorder of the organic brain. Another way of expressing it might be to say that it is the *spiritual* theory of insanity as against what may be called the *materialistic* theory. It is based upon the conception that mind and matter are two things entirely distinct, and, in a sense, even antagonistic.

This theory of the distinction of mind from matter has been inherited from a very remote ancestry, and is inextricably interwoven in both metaphysics and theology. It probably took its origin among very primitive men, and can best be explained by Herbert Spencer's "ghost" theory. As soon as the primitive man began to have bad dreams, and to believe that what he dreamed was true, he became a believer in ghosts, and with a belief in ghosts he laid the foundation for all the spiritual theories of succeeding ages, and at the very foundation of them he placed the doctrine that mind is an entirely different entity from body. This belief, in a vague and mystical way, must have far antedated literature. One of the very earliest appearances of it in primitive history anywhere was in that very ancient Hebrew record called the book of Samuel, where the witch of Endor, at the solicitation of King Saul, makes the ghost of Samuel rise from the ground.<sup>1</sup>

The Homeric poems, which are probably nearly contemporaneous with the earliest Jewish annals, also contain references to a belief in ghosts,<sup>2</sup> as in the death of Rhesus, when stabbed as he slept by Tydides; or in the dream of Penelope<sup>3</sup>; or in that most dramatic book in the Odyssey, where Ulysses

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<sup>1</sup> I. Samuel xxviii.

<sup>2</sup> Just then a dreadful dream Minerva sent;  
A warlike form appeared before his tent,  
Whose visionary steel his bosom tore;  
So dreamed the monarch and awaked no more.

—Iliad (Pope), Bk. 10.

<sup>3</sup> Beautifully illustrated in Flaxman's Designs, Odyssey, Bk. iv.

descends into hell and holds converse with the shades. Pope, in commenting on a passage in that book, says it "affords full evidence that the ancients believed in a partition of the human composition into three parts: the body is buried in the earth; the image descends into the regions of the departed; and the soul, or the divine part of man, is received into Heaven, or returns to the deity whence it emanated."

To trace the history and development of these spiritual conceptions would be to traverse the whole domain of philosophy and theology. It is enough to say that these ideas were most fully developed by the Greeks, that wonderful people who cast in imperishable forms so many of our fundamental ideas, and expressed them in language which is still the current terminology of our modern thought and our modern science. The Hebrews themselves never advanced beyond the most primitive ghost theory, for in all their ancient literature there is a marvellous absence of the fully developed idea of the immortality of the soul. But the Greeks never ceased to elaborate the idea of the "psyche," and their speculations, often fanciful, reached their highest flight in the *Phædo* of Plato,<sup>4</sup> that treatise on immortality which Cato read the night before he killed himself.<sup>5</sup> From the Greeks what had been a philosophical speculation passed to the Christians as a dogma of faith.

The idea of the distinction between body and mind, or between matter and spirit, is so ingrained in all modern thought that it is almost impossible to dissociate it from our way of thinking and talking without doing violence to our logical processes and without seriously offending some of our most cherished prejudices. Modern psychology, which is the science that concerns us here, and which is the least well established on a purely scientific basis of all our medical sciences, has received its full share of this inheritance; and is so permeated with metaphysical distinctions, that one of the most accurate of modern psychologists, John Locke, could say that he could conceive of mind acting without matter as easily as he could conceive of matter acting without mind.<sup>6</sup> But he

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<sup>4</sup>"Works of Plato," Translated by Cary.

<sup>5</sup>Plutarch, "Life of Cato."

<sup>6</sup>"An Essay Concerning Human Understanding."

evidently deceived himself with an antithetical phrase. I venture to say that there are few persons who have critically studied mental pathology, and whose minds are trained to scientific methods, who will agree with Locke that the mind can be conceived of as acting without a material brain. It were as easy to conceive of light without a luminous object, or of an electric current without the cell or dynamo which gives it origin.

That Locke's view, however, has been the prevalent one among modern psychologists is a fact that is not difficult to demonstrate. Most of these, who have written under the metaphysical impulse, assume or imply on almost every page, that matter and mind are distinct substances. Thus, Sir William Hamilton, who will generally be accepted as one of the most representative as well as one of the most luminous writers of this school, includes his psychological writings in a treatise which has the general title of "Metaphysics," thereby showing his conviction that mental phenomena are apart from and above the physical or physiological phenomena. "Mind and matter," he says,<sup>7</sup> "are only two different series of phenomena or qualities. Mind and matter, as unknown and unknowable, are the two substances in which these two different series of phenomena or qualities are supposed to inhere. . . . The distinction of two substances is only inferred from the seeming incompatibility of the two series of phenomena to coincide in one." There surely could not be a more unequivocal statement.

It was the part of Bishop Berkeley to attempt to reconcile these seeming irreconcilables, and this he did by resolving everything into ideas. As we know substance only by its qualities, so we know mind only by its qualities, but as the qualities of matter are only known to us as they become ideas in our minds, therefore there is nothing after all in the universe but ideas. Thus he attempted to get rid of that inconvenient thing which we call matter. From such eminent writers as these modern psychology has largely accepted its fundamental principles.

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<sup>7</sup>"The Metaphysics of Sir William Hamilton." Collected by Francis Bowen, Cambridge, 1866.



If these subtle questions were merely of speculative interest, I should not consider them appropriate for discussion here. But the fact is undoubted that we have imported some of these refinements and distinctions into our medical sciences, especially such sciences as take note of the physiology of the brain, and more particularly the science of psychiatry. One cannot advance far in psychiatry, and especially in that branch of it which pertains to medical jurisprudence, without finding that he is constantly coming in contact with terms that are essentially metaphysical; terms which evade him like a will-o'-the-wisp if he attempts to apprehend them at any true worth or to resolve them into anything like a clinical entity. This is a weakness from which medical science has long been trying to free itself: we are gradually getting rid of the "humours" and "vital principles" which formerly paraded through our medical literature, but we have not yet fully learned that the so-called mental functions are not distinct individualities, each with its own array of ills.

This infirmity plays curious tricks with some medical writers. Carpenter, the physiologist, makes a most fantastic attempt to reconcile "mind" and "matter," as though they needed any reconciliation. He states<sup>8</sup> that "mind" is a "force," and that "forces" can be conceived of as independent of matter—instead of the true statement (proved by all knowledge of physics) that any and all forces are but manifestations of matter. This is but a restatement on the part of Carpenter of the dual theory that mind and matter are two distinct substances, and renders any rational theory of mental pathology absolutely impossible. It is but a short step from such a theory to the doctrine of Mrs. Eddy, that disease is only a mistaken judgment, and that in fact physical disease is inconceivable as acting in the domain of pure mind. It is impossible to conceive how it happens, if mind and matter are distinct substances, that a dose of morphia produces sleep, or alcohol intoxicates, or the poison of typhoid fever throws all the mental functions into the confusion of delirium.

But it is in the medical jurisprudence of insanity particu-

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<sup>8</sup>"Principles of Human Physiology." Philadelphia, H. C. Lea, 1868. "Of the Mind, and Its Operation," p. 537.

larly that I wish to trace some of the evil effects that have come from a metaphysical conception of mind and its disorders. This is an eminently practical subject, and should not be obscured by a mere display of dialectics. The problems involved in the jurisprudence of insanity are problems of fact, not of theory. But the confusion which has too often reigned in this province is due, I conceive, in part at least, to the fact that a metaphysical conception of the subject of mental disorders has been held by some medical and by many legal writers. The situation may be stated about as follows: The mind, being a distinct substance, is regarded as composed of certain elements or functions—such as the “will,” the “memory,” the “imagination,” the “intelligence,” the “moral sense,” and the “emotions”; and these elements or functions are then erected into distinct entities themselves, each capable of being diseased separately and apart from its fellows. This is, in every sense, a very crude, even gross, conception. As the body has its several viscera, so the mind has its viscera: and as the liver can be diseased apart from the heart, so the moral sense can be diseased apart from the intelligence. This analogy is hardly based on exaggeration. Such an analysis of the mental functions is entirely academic, and there is no reason to suppose, but every reason not to suppose, that it represents any subdivision of the nerve cells in the cerebrum. That it has had great sway, however, in formulating the legal tests for insanity is unquestionable.

It is difficult to ascertain when and where the first legal definition of insanity was given in the English law. Neither Littleton, Coke, Fitzherbert, nor Hale, who are among the earliest authorities, give anything but their own opinions, so far as we can judge from the text of their writings: but as they were all great authorities on the common law, and evidently well saturated with legal tradition (which passed for common law), they apparently gave what passed for judicial opinion on the subject in their day. They made but little attempt at an analysis of insanity. Coke got little farther than to quote from Littleton, and to tell us that the proper term in law for insanity was *non compos mentis*. Fitzherbert, who wrote early in the sixteenth century, lays it down that “an

ideot is one who knows not to tell 20 pence; or who is his father or mother,<sup>9</sup> nor knows his own age. But if he knows letters, or can read by the instruction of another, then he is no ideot." This was a test of *non compos mentis* based simply on the amount of elementary knowledge a person might possess. Lord Chief Justice Hale made the astonishing division of the subject into two parts—his *total* and *partial* insanity, and he is the earliest legal writer who attempted a metaphysical analysis of the mental functions. Under *partial* insanity he includes those who have "a particular dementia in respect of some particular discourses, subjects or applications." This, he says, "is the condition of very many, especially melancholy persons, who for the most part discover their defect in excessive fears and griefs, and yet are not wholly destitute of the use of reason," and he expressly says that "this partial insanity seems not to excuse them in the committing of any offense for its matter capital." According to this definition, so long as the faculty of "reason" retains any power to act, the disturbance of other "faculties," such as the emotions of grief and fear, does not render a man irresponsible. The distinction is entirely a metaphysical one, and if taken literally would exclude all melancholics and all delusional lunatics from the category of the criminal insane. There is no paranoiac or no melancholic who does not retain some power of reasoning.

It was not until somewhat later, when insanity began to be more in evidence in the English courts, that the incentive was more generally felt to attempt to analyse and define mental phenomena in the hope of determining precisely where that subtle quality lay which we call human responsibility. One of the early cases, often quoted, was that of Edward Arnold, tried in 1724, for shooting at Lord Onslow.<sup>10</sup> Arnold was evidently insane; and in the charge to the jury Mr. Justice Tracy used a terminology which may in a sense be called classic, however much we may differ with it, because it has been repeated and used and followed in innumerable courts both in England and America for almost two hundred years. To exempt a man from punishment he must be "totally de-

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<sup>9</sup>Fitzherbert evidently thought that it was "a wise child who knew its own father."

<sup>10</sup>Howell's "State Trials," 16, 695.



prived of his understanding and memory, and doth not know what he is doing, no more than an infant, than a brute or a wild beast, such a man is never the object of punishment." He must also not be able "to distinguish between good and evil." This was the first statement, I believe, of the celebrated test of the knowledge of right and wrong. This dictum of Justice Tracy implies that the "memory and understanding" are distinct parts of a man's mind, and that it is possible for these two distinct entities to be totally destroyed or cut out, just as a man's arm or leg could be taken away from him. Such a conception is metaphysical, and could only arise from a process of personifying the mental functions and speaking of them as though they were distinct parts, separable from the rest of the mind. But we know as a fact that there are no lunatics who are "totally deprived of understanding and memory." Not even the lowest types of dementia or the worst forms of raving mania are in such a condition. For those who have the slightest acquaintance with the mental pathology such a condition, in a criminal lunatic, is inconceivable. To deprive a man totally of memory and understanding he would have to be put into a state of profound unconsciousness. To suppose that the memory or the understanding could be thus obliterated, apart from the other mental functions, it is necessary to soar aloft into the region of mere abstractions, and to contemplate the several parts of the mind as so many individualities. Such language is not the language of science.

One of the latest products of this metaphysical theory of mind is that extraordinary psychosis known as "emotional" insanity. Mr. David Dudley Field, a very able New York lawyer, was as responsible for this as any other writer I know of. In 1873 he attempted to clarify the subject of insanity for the special benefit of the courts,<sup>11</sup> and decided that there were four kinds of insanity—perceptual, intellectual, emotional, and volitional. This division is entirely academic, and is founded on the ordinary academic analysis of the mental functions. It divides the mind off into a series of distinct and separate territories, and then fences in these sev-

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<sup>11</sup>"Emotional Insanity," *Albany Law Journ.*, May 3, 1873, p. 273.

eral artificial psychoses each in its own paddock. It is as neat and precise as can be—the only trouble with it is that there is nothing corresponding to it in the domain of actual facts. Mr. Field fails to tell us very plainly what emotional insanity is—he is only positive about one thing, and that is that emotional lunatics should all be hanged. So it seems a pity that he invented these poor cranks just to string them up on a gibbet. From his meagre attempts at psychological analysis, however, it is evident that Mr. Field confuses emotional disturbances with delusions—in other words, he wanders from the emotional paddock into the intellectual paddock. It is almost needless to say that there can be no such thing as a pure emotional insanity, if by that term is meant an insanity in which the emotions alone are affected. It is impossible to conceive of an emotion without an act of the intelligence—the two modes of cerebral action are not separable. The analysis is only possible by means of a metaphysical abstraction, which separates the emotions from all other mental phenomena, then endows them with a distinct personality, and then makes that personality the subject of disease. No more mischievous distinction was ever made than this; and it is worthy of remark that this term has been more abused by the lawyers and the courts than by the doctors. It is a favorite psychosis to be urged in behalf of a popular favorite—of some interesting criminal who has enlisted on his side the public sympathy. Such cases were those of Sickel, Walworth, Nutt. As has been said of another artificial psychosis, by a shrewd writer in the Law Encyclopedia, “it is a term invented by ingenious lawyers to afford to the jury a safe bridge upon which to pass from a disagreeable technical duty to the accomplishment of their desire, when the accused has killed some one who, according to the consensus of opinion, ought to have been killed.” It is surely justifiable to hammer such psychology with a quotation from Aristotle, and to say *stultum est absurdas opiniones accuratius repellere*.

But such artificial psychiatry is not confined to lawyers and the courts. Marc, who is one of the older French authorities in medical jurisprudence, attempts to show that insanity is a disease of the will. “If the action of a lunatic,” he says,

"is not imputed to him as a crime, it is because he is presumed to have acted involuntarily." This is just as unscientific as to erect an emotional insanity. It depends on the same kind of academic analysis. An "insanity of the will" does not exist if by this is meant the freedom of the other faculties from disease. An act of the will always presupposes an intellectual concept, and this is usually associated in the insane with an emotion: the whole mechanism is disturbed, not only one part of it. To say otherwise is to indulge in scholastic, not clinical, psychiatry, and the idea of Marc that insanity is a loss of will would only be true if lunatics were reduced to the state of automata, or mere machines. Every practical alienist knows that this is not so. Le Grand du Saulle, who has subjected Marc to a very searching criticism on this point, shows that the will alone was not involved in the very cases which Marc brought forth as examples. For instance, a woman became melancholy and taciturn, then had spells of excitement, turned against her husband, and ended by believing that she was the daughter of Louis XVI. and Marie Antoinette. Yet Marc finds in this typical case of delusional insanity a primary affection of the will! In fact, as Du Saulle says, the will was not only intact but even more nearly sound than the other faculties. This is a striking instance of the evils of trying to erect metaphysical types of mental disease on any one or other individual mental faculty. So far from being abolished or impaired, the will, or the firm intention to act in response to a delusion, is one of the clearest characteristics of some lunatics.

The term "monomania" is perhaps one of the best illustrations of the facility with which mere terms can be made to do service as actual things in the science of psychiatry. Originally proposed by Esquirol, that great leader in our science, this term has been made to do duty by standing for many impossible things. The history of the term itself, and the criticisms which have been evoked by it, are so admirably described by Dr. Spitzka<sup>12</sup> in his work on insanity that I need not dwell in detail on them here. As the etymology of the word signifies, monomania is a form of insanity in which a

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<sup>12</sup>"Insanity." New York, 1883.



patient is supposed to be insane only on one subject. From this conception, which is in a sense proper enough, it was easy to form the idea that a man was insane in only a limited territory of his mind, or only in one little corner of it; and to hold him responsible for what happened in the open territory. The conception thus fitted in very accurately with Lord Hale's definition of "partial" insanity, and these two terms have conjointly been responsible for much confusion and not a little injustice in English and American courts. The attempt has been made many times to lay down the rule that a monomaniac's crime must be traced to and connected with the "one idea" upon which alone he is supposed to be insane. It is as though a lunatic's mind were ninety-nine parts sound and one one-hundredth part diseased; and the insane acts must all be shown to issue from this little patch of infection. To perform such impossible feats of psychological analysis is the part imposed on the expert. It were as reasonable to say that a patient with typhoid fever, or with Bright's disease, or with tuberculosis of the lungs, was only *partially* ill because all his organs were not equally involved, or to endorse the diagnosis which Hamlet made of his own case,

I am but mad north-northwest;  
When the wind is southerly I know a hawk from a hand saw.

Moral Insanity has been the subject around which have waged more dialectic battles than about any other term in psychiatry. It is only necessary to mention the names of Rush and Pritchard, of Winslow, Ray and Maudsley, as the advocates of this psychosis, to dignify the contest. The conception is based upon a purely academic analysis of the moral functions as separate and distinct from all other mental functions, and upon the claim that these moral functions can be diseased separately and apart from the others. I suppose that the best refutation of this thesis is based upon a criticism of the cases which these eminent writers bring forward to illustrate and support it. I have been at considerable pains to go over these cases, and desire merely to state here that there is not one of these cases which, if critically inspected, supports the claim. Nothing can show more clearly how inadequate the term is, than the array of all sorts of lunatics who

have been marshalled to support it. Cases of melancholia, of maniacal exaltation and especially of paranoia, have been made to do duty here, until the result is a complete confusion of any rational scheme of nosology. The fault lies in the attempt to divide the human mind into compartments, and to inclose in each compartment its appropriate diseases. The attempt being an essentially metaphysical one, will fail, and already has failed, for little now is heard of moral insanity; and I do not know of an instance for many years when this defence has been urged successfully in a court of law. It is, however, more than a mere dialectical question: it does, or has done, great harm by depriving some paranoiacs of a just defence. It should be recognized that none of these patients are merely affected in their moral sense, but that the intelligence, as an integral part of the moral sense, is always and necessarily involved.

Moreover, the magnifying the moral sense as a criterion in insanity, acts like a boomerang on expert testimony, and leads directly to the test of insanity which has been imposed by so many courts. This is the test of the knowledge of right and wrong. This test is no more illogical, but in fact it is of the same sort, as the doctrine of moral insanity. Both are based upon the conception of the moral sense as a sort of separate organ in the human mind. If this organ is diseased, the patient is insane; if it is not diseased, he is legally responsible. Since Mr. Justice Tracy, in the case of Arnold, first promulgated this test, it has gone a course through every English and American court for nearly 200 years. It was sanctified by the opinion of the English judges in the celebrated McNaghton case, and starts up to confront every expert witness who goes on the stand in a case of criminal lunacy. It almost evades analysis, for there is probably no lunatic, unless he is a hopeless dement or in a complete delirium, who has not some perception of right and wrong. It in no sense touches the point at issue in any case; and the reflection is a curious one, that, although sane men have been arguing for ages about what really constitutes the distinction between right and wrong, the knowledge of this distinction should be made the test for a poor lunatic.

In conclusion, allow me to state that insanity is a disease, not of abstract mental qualities, but of the organic brain cells, and that a disease process in a nerve cell is not likely to respect scholastic distinctions, for a microbe may be more potent than a philosopher in analyzing a mental state. As Le Grand du Saulle has wisely said, "In spiritualizing insanity too highly one arrives at false medical consequences. It is not as a philosopher that one should study insanity, but as a physician. By way of the clinic one arrives more surely than by all the seductive theories at scientific applications which mark progress."



## THE SURGERY OF IDIOCY AND INSANITY

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Some of us, I fancy, in writing upon this subject, would be disposed to consider it in the same manner as snakes were discussed in the famous chapter on snakes in Iceland, in which the learned author's views were set forth in the single sentence, "There are no snakes in Iceland." Such a one might write a chapter on the Surgery of Insanity, and simply state, "There is no surgery of insanity." Nevertheless, it must be admitted that such an attitude would be untenable; for there may be conditions associated with insanity that demand operation, and some few insane states themselves call for it.

Some men have so far departed from this conservative standpoint as to have actually become enthusiastic advocates of operations to cure insane conditions, thinking apparently that ideas may be knocked into lunatics' heads like they were into Jack Bunsby's, who "took as many spars and bars and bolts about the outside of his head, when he was young, as you'd want an order for on Chatam Yard to build a pleasure yacht; and yet he'd got his opinions in that way." Some would attack the brain directly, in order to look for lesions—such as cysts or blood-clots—and attempt to remove them; others would trephine, to alter pressure or to drain; and still others would remove considerable portions of the bones of the skull, in the hope of causing a diminutive brain to expand. Among these enthusiasts are, of course, to be found certain of the specialists. Some maintain that in insane women abdominal section is likely to disclose conditions of pelvic disease that should be removed; gynecologists have advised correcting uterine displacements and repairing lacerated perineums and cervixes, and genito-urinary surgeons have been impressed with the occasional association of genito-urinary and mental disease; and laryngologists now and then come forth to proclaim the need of treating the larynx or naso-pharynx.

We thus see that some physicians utterly disbelieve in operations for insanity; but that the majority think that there are times when they are justifiable, while a few consider them to be frequently necessary. An operation may be intended to remove the cause or the association of the insanity, a condition giving, it may be, climate to the mental atmosphere and influencing unfavorably the state of the patient; or this peripheral irritation may be merely an annoying and harrassing complication, impairing the general health. An operator may also attack the brain directly, with the thought that a causative lesion may be reached and removed, or that pressure may be modified. In considering this subject, we would lay down certain facts as a basis for any conclusion that may be reached:

1. A surgical operation, like an injury or an attack of fever, may be followed by the development of insanity. This is particularly true in women, after operations on the pelvic organs. This fact is so well recognized that the name post-operative insanity has been given to the condition. It is most likely to occur in those already predisposed to insanity. A shock of any sort may immediately bring on a temporary delirium; may lead to the development of prolonged excitement, or of stuporous dementia; may cause gaps, or *lucanæ* in the memory; or may produce confusional insanity.

2. The development of a carbuncle, or a crop of boils, an attack of erysipelas or of some other acute illness, an injury, a severe physical or mental shock, or a surgical operation is occasionally followed by the apparent cure of mental aberration. In a case of acute mania in the Insane Department of the Philadelphia Hospital, cure rapidly followed a fall. In another case in the same hospital cure rapidly followed an act of self-mutilation, the man having forced his penis through a metal ring. The parts were much lacerated and removal was accomplished with difficulty. Clouston saw a man cured of hypochondriacal melancholia by losing his fortune and being obliged to go to work. The same alienist saw a woman cured of melancholia by marrying a widower with seven children. A trend towards dementia may sometimes be arrested by a powerful physical or mental impression. It thus be-

comes evident that shock sometimes causes insanity and sometimes arrests it, just as an explosion may stop a clock, and sometimes may start one which is wound but not running. Such events may interrupt morbid mental habit, lift the thoughts from a groove, concentrate the attention on realities. Cure may be due to fear, to a strong arousing of the will, to the awakening of hope previously dormant, or to alterations in intracerebral pressure. All these influences except the last, it would appear, should be more strongly present when an anesthetic is not used than when it is given. Such a cure is apt to be sudden.

3. Sudden cures in the insane are not likely to be permanent. One feels much more confident in regard to a patient's future if there is a gradual return to a normal level, than if there is a sudden return. Persons that suddenly become apparently normal are extremely likely to have a reproduction of the attack of mental trouble; hence, it is wise to consider carefully whether a case apparently cured by surgical operation would not have recovered anyhow, and whether a gradual recovery brought about by ordinary methods of treatment would not have been better than a sudden recovery produced by operation.

4. One should not lose sight of the fact that although a surgical operation may be followed by apparent cure, it very rarely is; and that just as shock or traumatism may develop an insanity, it may make an existing insanity worse. Hence, the surgeon should bear in mind that it is a great responsibility to recommend operation; for the chances are that in most instances it will fail, and there is always the possibility that it will make the patient worse.

5. There is always considerable doubt, even in apparent cures, as to what actual part the operation has played in producing the result, and whether the patient had not been on the high-road to cure when the operation was undertaken. The real test of the value of an operative procedure is to find that the recovery rate is much better than in like cases unoperated upon or that cure follows in cases that, on account of the type of insanity or because of the duration of the disease, would otherwise be esteemed hopeless. Most acute cases recover under medical treat-



ment. It is estimated that 70 per cent. of acute maniacs and 50 per cent of melancholiacs recover from first attacks. In the first six months of an acute case the prognosis is good. In the second six months it is only one-half as good. After the third year it is almost hopeless (Régis). One test question is, Can Surgery cure cases after the third year? and another is, Can it cure secondary dementia, paranoia or paresis?

6. Insanity may be associated with physical bodily disease and, whereas this physical bodily disease is not the actual cause of the insanity, it may have predisposed to it by depressing the general health, developing pain, impairing the appetite, or creating insomnia. Furthermore, such physical disease not unusually directs the attention to a particular region, colors the emotional tone, and favors the production of delusions of a certain nature. It admits of no dispute that an insane individual that has some dangerous or annoying, yet curable, physical disease, has a right to have that disease cured by surgery; and that the cure of such a condition by surgery may be followed by improvement in the mental state, because it may remove certain annoyances, harassments, and weakening influences upon the general health.

7. An examination of the recorded cases indicates that some of them have been reported by men entirely untrained in the care of the insane, and that not infrequently no alienist has been associated with the surgeon in making the diagnosis or in judging whether a cure has resulted. From some reports, one cannot tell what was the real form of insanity present; what were the hereditary tendencies, what the predisposing or exciting causes, from some reports, one cannot be sure that the patient was really insane. One case is reported as delirium of persecution, and yet from the report there is no evidence that anything existed except the obsessions of neurasthenia. Some present no proper demonstration that cures have been obtained. One case is reported as showing signs of dementia and then becoming violently insane. One report is made of a man who was trephined and after operation spots suggesting syphilis appeared on his body. He was placed on specific treatment and recovered, and the cure is attributed to operation, which is said to have permitted the absorption of "syphi-

litic phenomena." One insane condition is described by saying: "Patient could not think much, only to a certain point." Another report says that, "immediately after operation patient began to follow out ideas." In order to have any value, the cases must be reported by those that possess some knowledge of insanity and have properly and systematically studied the case.

8. Some of the reporters have been extraordinarily optimistic, and one cannot help thinking they have occasionally seen what they expected or wished to see. As St. Theresa long ago said, "I have known some of weak mind who imagined they see all that they think, and this is a very dangerous condition." The favorite argument of such persons is the *post hoc, ergo propter hoc* method of the savage. They reach a conclusion in the same manner as those of a former day concluded that the fearful famine that afflicted France in the eighth century was due to the repugnance of the French people to the payment of tithes.

In discussing the subject of the surgical treatment of insanity, I shall, of necessity, make definite headings, under which I shall consider special conditions:

1. Operations for microcephalic idiocy. 2. Operations for hydrocephalic idiocy and imbecility. 3. Operations for epileptic insanity. 4. Operations for paresis. 5. Operations for ordinary non-traumatic insanity and paranoia. 6. Operations for hypochondriacal delusions. 7. Operations for hallucinations. 8. Operations for traumatic insanity. 9. Gynecological, abdominal, genito-urinary and nasal operations on the insane.

I. OPERATIONS FOR MICROCEPHALIC IDIOCY.—In the year 1890, Fuller, of Montreal, trephined an idiot's skull in hope that the operation would improve the mental condition. Soon afterwards, Lannelongue, of Paris, devised the operation of linear craniotomy for the treatment of microcephalic idiocy. This operation was founded upon the hypothesis that in microcephalic idiocy the fontanelles close prematurely, and ossification of the cranial sutures takes place too early; and that the developing brain is unable to expand on account of the rigidity and non-distensibility of the bony case. The procedure was re-

ceived with enthusiasm. It was floated high on the wave of surgical fashion. It was employed extensively, in widely separated countries, by many operators; but it is now going out with the tide.

In considering this operation, it is well, first of all, to bear in mind that microcephalus is a form of idiocy in which the cranium is of such small size as to be distinctly noticeable. All idiots in which the circumference of the skull is less than seventeen inches Ireland considers to be microcephalic. This is not by any means a common form of idiocy, for probably not more than one idiot out of every hundred belongs to the microcephalic type; hence, in only one idiot out of one hundred is Lannelongue's operation to be even considered.

Beyond any doubt, the fontanelles are found closed at birth in some microcephalic idiots; and occasionally the sutures do ossify prematurely. Once in a while, as Jacobi has pointed out, there is also premature ossification in the bones of the face, and the teeth erupt at too early a period. If microcephalic idiocy were the result of premature ossification, closure of the fontanelles, and non-distensibility of the brain-case, the operation of Lannelongue would have a reasonable foundation; and the surgeon might hope that removing a piece of bone would lessen the pressure upon the brain; the pressure that might have limited brain development; but there seems to be overwhelming evidence against such a view of the causation of this condition. First of all, the size of the head is no proper gauge of the intelligence of the idiot; for we have all seen some microcephalic idiots that possessed more capacity than other idiots with large heads. Premature ossification is the exception, and not the rule. This has been proved by Bourneville, who made a large number of examinations and found that it is just as common for the sutures to be closed less tightly than they should be as for them to be closed too firmly. Again, as Gratiolet has pointed out and Ireland has confirmed, even when the sutures of the vault are prematurely ossified, those at the base are found to lag behind the proper level of development. Furthermore, it should be remembered that it is a rule of the economy for the soft parts to dominate the hard, rather than for the hard to control the soft; therefore, an



expanding brain would be more likely to thin and expand the skull than a contracting skull would be apt to limit the brain.

A study of the brains of microcephalic idiots reveals no signs of pressure. Had there been pressure, the sulci would be shallow and indistinct, and the convolutions would not be definitely marked; but, as Sir George Humphrey points out, the convolutions are clearly outlined and the sulci are distinct. Not unusually, in microcephalus, the spinal cord, as well as the brain, is small; yet this condition, which is strikingly analogous to the other, cannot have been produced by ossification of the vertebræ. Neither can the small heart so frequently found be due to ossification of the ribs.

Again, microcephalus begins long before birth, probably before the fifth month of intra-uterine life. This is evidenced by the fact that at birth certain brain-areas that should be found do not exist. To a small, ill-developed brain, badly formed and even deformed,—a brain that may lack certain convolutions and does lack quantities of nerve-cells that a normal brain would contain,—the skull is moulded. Besides, in microcephalic idiocy there are likely to develop curious structural changes, which could by no possibility be amended by an operation. Furthermore, it should be borne in mind that in idiocy there is a general lack of development. Rickets frequently exists; the patient may be without the sense of sight or that of hearing; some of the bodily structures may be absent; deformities of the toes are quite common; a certain formation of the hand is so characteristic that it has been called the idiot-hand; and the skin is curiously relaxed and inelastic.

I think with Ireland that the skull cannot limit the growth of the brain, and that the brain does not cause a normal skull to expand; but that brain and skull grow together harmoniously, under the influence of an inherent formative force that adjusts each to the other. Believing, then, that premature ossification is not responsible for microcephalic idiocy, I should not use Lannelongue's operation even in these cases. In other cases of idiocy it is not to be considered at all; although some surgeons have recommended that it be performed in those cases also, if there are evidences of pressure. Pressure, however, is not, of course, the cause of idiocy.

I have assisted in a number of these operations in the past, though I have never performed one; and I am convinced that they are absolutely without value. In a condition of general maldevelopment such as idiocy, the removal of a strip of bone cannot create powers that are non-existent. It cannot release the shackles from fettered capacities; and cannot stir a dormant mind, because, for one reason, the powers that are assumed to be shackled do not exist. The cells of the brain are abnormal in character and deficient in number. The surgeon who performs this operation with the idea of causing the brain to develop displays the same judgment as if he were to remove a section from the dome of the cathedral in order to increase the stature of the archbishop and of his assistants.

Some years ago, remarkably favorable statements in regard to this operation were made, but some of the most enthusiastic reporters have since changed their views. For instance, E. Blane was much impressed with the value of the operation in 1890 and for a time subsequent to that date. He has performed it seven times and found that the immediate results were favorable; but later observations of these patients have caused him to change his opinion, as he has found that they all returned to their previous mental state. Several years ago, my friend, Dr. Barr, in the Pennsylvania Institution for the Feeble-Minded, at Elwyn, showed me two idiots that had been reported as instances of notable improvement; yet each patient, in Dr. Barr's opinion, had degenerated after the operation from fairly high-grade to low grade idiocy. In view of these facts, I am persuaded that not only is the operation useless, but that it sometimes actually makes the idiot worse. Lannelongue's operation, of course, possesses decided elements of danger, but a family is not likely to lament the death of an idiot-child under a surgical operation; in fact, it is not improbable that the operation is sometimes sought by the family in the hope that it will either improve the condition of the miserable specimen of humanity or kill it. A surgeon, however, should not be willing to assume the duties of an executioner.

That some distinguished and conscientious practitioners

have been for a time convinced that the operation is productive of good results is undoubted. This conviction seems to have arisen from the fact that there is frequently some evidence of improvement for a brief time after the operation. For instance, Pouchet, as lately as 1902, reported two cases, and stated that one patient was remarkably improved in intelligence thirteen months after the operation. That there is sometimes a temporary improvement, I acknowledge; but a great many of the favorable reports have been made altogether too soon after the operation. Tillmanns cautions us against mistaking a temporary for a permanent improvement. The reason for this frequent temporary improvement is obvious. The idiot, probably for the first time, is placed under careful regulation, positive direction, and scientific control. It is watched and guarded, and its doings are systematically observed. It sees about it new faces and hears strange voices, and it soon feels the effect of these various changes in its life. An anesthetic is given it, and it suffers from the shock of an operation. A powerful temporary effect may thus be produced. Hence, after an operation it is quite common for an idiot to become quieter and more easily controlled; but this improvement does not last, unless the systematic regulation practised just before and immediately after operation is continued. All the circumstances before mentioned serve to concentrate the attention and to utilize what little intelligence may exist.

Again, idiots are subject to outbreaks of maniacal excitement; and parents that have not previously thought of having an operation performed will often decide to have this done when the child has a maniacal outbreak and becomes uncontrollable. When the surgeon first sees the idiot, it is in a state of great excitement; but after the operation this excitement often disappears. The operator may suppose that the idiocy has been benefited, whereas the child has merely returned to its ordinary regular condition. If, later, it is trained and educated, and does distinctly improve, there is a tendency on the part of the operator to give the entire credit to surgery.

After having carefully weighed the reported cases and considered in the light of my own experience, the views of



various authorities, it seems proper to set forth the following conclusions :

1. Microcephalus is not the result of premature sutural ossification.

2. A microcephalic brain is not a more or less normal brain of very small size, the idiocy resulting from the smallness of the parts present ; but is always an abnormal and undeveloped and, in a great many cases, a diseased brain. Large areas of it may never be developed ; and the cells that are present are small and comparatively few in number.

3. In idiocy not only the brain, but the entire organism is in a condition of general undevelopment.

4. If a strip of bone be removed from the skull, new normal cells will not be produced. Parts that are entirely absent cannot be created, and powers that do not exist cannot be called into being. The operation cannot bring about these changes any more than it could give sight to the blind idiot or hearing to the deaf one, or could make the inelastic skin of the idiot elastic.

5. The reported improvement after this operation is not due to the surgical procedure. Many cases have been reported at too early a date ; numbers of those in which improvement is said to have taken place have not continued in this improved condition, and some patients have been made worse. When the improvement has continued, this has been due to proper instruction and care, and not to the operation. Sometimes, also, the alleged improvement has been due to the passing away of a maniacal attack.

6. In uncomplicated cases, the operation is never justifiable ; its mortality is nearer 15 per cent than 2 per cent, as alleged.

7. The proper treatment for microcephalus is educational, hygienic, and disciplinary. What activities the brain possesses should be trained, guided, directed, and controlled.

8. Certain complications may arise that would make trephining justifiable : for instance, certain forms of epileptic seizures, muscular spasm, muscular rigidity, or paralysis. The operation may relieve such a complication and contribute to the patient's comfort, but it will not benefit the mental condition.

9. In traumatic idiocy or in cases of idiocy in which definite pressure-symptoms arise, operation may be justifiable.

In opinion I am in entire accord with Dr. Nicholas Senn, who says: "I am free to confess that I have never been able to muster up courage to attack the skull of a poor microcephalic child, because I have always regarded the operation as useless in promoting brain-development. The responsibility of the surgeon is not limited to the defective mental development of the child, nor to the importunity of the parents in demanding an operation at all hazards. The surgeon should stand guard over such a charge, mindful of the limits of the art of surgery." That the operation has been a failure is now admitted by practically all judicial-minded surgeons. Much was expected of it, but we may say of it what Pepys said of the dinner set before him: "The venison-pasty was palpable mutton." It is quite needless to waste our time with the enthusiasts who once claimed that they could empty institutions of idiots by performing this operation.

2. OPERATIONS FOR HYDROCEPHALIC IDIOCY AND IMBECILITY. Of course, hydrocephalus does not always cause idiocy; in fact, it occasionally does not even cause imbecility. In the vast majority of cases, however, it does produce decided mental weakness, and often complete idiocy. A child with marked hydrocephalus rarely lives more than a year or so, and is likely to be rickety and to develop tuberculosis. As a rule, these idiots are heavy, dull and somnolent; and are liable to attacks of persistent vomiting, convulsive seizures, and the development of paralysis.

When one contemplates the hopelessness of the condition in these cases, and the early death that is likely to ensue, or the almost inevitable failure of the mind to develop, one is justified in taking a good deal of risk if there is any hope of improvement. Strapping the head with adhesive plaster or compressing it with a rubber bandage is painful, cannot be long tolerated, and rarely does good: although, after drainage has been inserted beneath the scalp or beneath the dura, it is sometimes advisable to compress the head with a rubber bandage. Tapping through a fontanelle has frequently been done, two or three ounces of fluid being allowed to flow out at one opera-

tion. In a case in which the sutures are unossified and the fontanelles are open, if the ventricle is tapped in this manner, the head should subsequently be compressed with a rubber bandage. In a case in which the skull-sutures are ossified and the fontanelles are closed, the skull may be trephined and the ventricle formally tapped; but tapping has rarely proved of much benefit and is not unusually fatal. Some surgeons have endeavored to increase its efficacy by injecting iodin, but this is not advisable.

Repeated lumbar punctures have been recommended in acquired cases; and in congenital cases, repeated lumbar punctures associated with antisyphilitic treatment. (Immerwol.) Occasionally a patient is benefited by a series of lumbar punctures. As a rule, however, lumbar puncture fails, because in hydrocephalus there is usually closure of the foramen of Magendie with fibrous tissue, or there is an exudation about the foramen magnum, which separates the spinal canal from the ventricular cavity; or there is adhesion of the tonsils of the cerebellum to each other and to the ventricle; or a cyst exists at the posterior and lower part of the cerebellum. (Bruce and Stiles, *Scottish Medical and Surgical Journal*, March, 1898.)

Some years ago, L. L. MacArthur, of Chicago, devised a promising method of operating in chronic hydrocephalus. He introduces a metal tube into the lateral ventricle, the collar about the external end of the tube resting upon the bones of the skull at the margin of the drill-opening, and the scalp being sutured about it. Two cases that he has operated upon by this method have been distinctly benefited. It will be observed that in this operation the fluid of the ventricle is drained into an area in which absorption can take place, and that the great peril of external drainage from the ventricle (which is infection) is avoided. I do not consider it justifiable to drain the ventricle externally for any length of time, but I do believe that MacArthur's operation has elements of great usefulness.

At a little later period, Mikulicz, not knowing of MacArthur's views, performed a similar operation; and somewhat subsequent, to the latter's studies, Troje effected drainage on a similar basis by introducing glass-wool into the ventricle.

Sutherland and Cheyne have devised a method of intra-



cranial drainage. They drain from the ventricle, not beneath the scalp, but into the subarachnoid space. A small opening is drilled in the skull, an incision is made in the dura, and some strands of catgut are pushed through the thin brain; so that one end of the catgut lies in the ventricle, and the other beneath the dura. The dura is then sutured, and the scalp is closed. Absorption is believed to take place from the subarachnoid space.

Bruce and Stiles (*Scottish Medical and Surgical Journal*, March, 1898) advocate trephining in the middle line of the occipital bone, just above the foramen magnum; and draining the fourth ventricle. Any method of external drainage, however, is likely to be followed by fatal infection; and I think that an operation on the plan of MacArthur's, offers some chance of decided benefit, and is far less likely to be fatal than is any other method.

3. OPERATIONS FOR EPILEPTIC INSANITY.—Epileptics are very liable to become insane. They may develop chronic dementia; temporary acute mania after a fit, before a fit, or replacing a fit; or chronic epileptic insanity, which may assume the type of a chronic mania, a chronic melancholia, or a circular insanity. A characteristic of these epileptic lunacies is the occurrence, from time to time, of violent outbreaks and the performing of impulsive acts, the violence coloring whatever type of insanity which may exist, and being linked with advancing dementia and with the occurrence of fits.

The conditions that in ordinary epilepsy without insanity would call for operation, also call for it in epilepsy with insanity. Operation, however, is even far less promising in these cases than in those in which insanity does not exist, because the brain-changes have advanced to such a point that there is almost no hope from any method whatever. Nevertheless, it is justifiable to operate if there is evidence of head-injury; and the procedure may at least lessen the number and the violence of the attacks. If there are focal seizures, one is justified in proceeding as one would for focal seizures in ordinary epilepsy. If status epilepticus exists, one should trephine to relieve pressure; but in the insanity that may accompany ordinary essential epilepsy, no operation of any sort is of the slightest avail.

4. OPERATIONS FOR PARESIS.—About fifteen years ago, considerable interest was aroused by the appearance of certain papers advocating operative interference in paresis. Harrison Cripps operated in 1890. Those who advocated it believed that in paresis there is apt to be increased intracranial pressure, and that trephining might be of value in relieving this pressure. In paresis there may undoubtedly be internal or external hydrocephalus; and in such cases drainage, as already mentioned, may effect some improvement. It is very common in paresis, to have an increased amount of fluid in the subdural space. If this be the case and one wishes to drain, one should bear in mind that in paresis tissue-resistance is very low and that suppuration is easily induced. Some have proposed the establishment of permanent external drainage. In a large number of cases of paresis in the advanced stage, hematoma of the dura exists; and the wisdom of removing such a collection is often questionable. The chronic leptomeningitis with adhesions that is so common a phenomenon can scarcely be improved by operation.

My own feeling is that the advantages of operation were for a time overestimated, because the remissions, so usual in paresis, had not been taken into sufficient account. The claim has even been made that in paresis recovery has followed a severe injury, suppuration, or an attack of erysipelas; hence, the deduction that it might follow the performing of a surgical operation. Personally, I doubt whether a genuine case of paresis has ever recovered; and I am inclined to believe that the cases of recovery reported have been either instances of marked and prolonged remission, or of pseudoparesis due to actual tertiary lesions, or that they belong in the category of those confusing cases in which trauma seems to have been a cause. Mickle believes that trauma does cause genuine paresis and asserts that one case out of fifteen is so caused.

Those who believe in traumatic paresis, may also believe that operation is occasionally curative, but many lean to the opinion that a diagnosis of traumatic paresis is scarcely proper; and that the probabilities are that so-called traumatic paresis is a condition in which the real degenerative lesions present in paresis do not exist, the condition being due to definite in-

jury, tumor, epilepsy, alcoholism, or syphilis. Of late years, operation in these cases has been practically abandoned, as there seems to be no real evidence that increased pressure is a constant factor in paresis. Furthermore in paresis the lesions are widespread; the pons and the medulla and sometimes the cord are affected as well as the cortex, and the lesions can not be removed. I do believe, however, that in a case in which convulsive seizures are marked and frequent, and in which there is evidence of exaggerated intracerebral pressure, operation may occasionally retard the progress of the case; but in a hopeless and incurable disease such as paresis one may, even granting this belief to be well founded, with reason inquire, "Cui bono?"

5. OPERATIONS FOR THE ORDINARY NON-TRAUMATIC INSANITIES AND PARANOIA.—By these designations one refers to cases in which there is no demonstrable causative organic change in the brain; such conditions as simple mania and melancholia, stuporous insanity, primary confusional insanity, and secondary dementia. It is perfectly useless to attempt any operation upon such patients with the idea of curing the insanity, although operation may be justified by the existence of some distinct symptom indicative of local brain-trouble. A. Voisin (*Journ. de Méd. de Paris*, 1896), reports a case of melancholia with suicidal tendencies in which there was severe and persistent headache in the left temporal region. A craniotomy of the left temporo-parietal region disclosed an area of pachymeningitis, and there was found a cyst in the motor region. Complete recovery from the mental symptoms followed this operation. This is an exceptional case, as cysts and meningitis are not commonly associated with melancholia.

Galion de Clérambault (Picqué and Dajonet: "*Chirurgie des Aliénés*," 1902), makes the extraordinary statement that mania, melancholia, and even paresis may greatly improve after operating upon othematoma. This seems to me to be a proceeding of the same degree of wisdom as tinkering at a weather-vane, in the hope of altering the direction of the wind; or attacking a thermometer for the purpose of regulating the existing temperature.

6. OPERATIONS FOR HYPOCHONDRIACAL DELUSIONS.—We



must bear in mind that a delusion pointing to a particular part is not proof that there is disease of that part. Some few delusions do have a visceral basis, but the fact that a delusion has a visceral basis is no proof that the insanity is due to visceral disease. In hypochondriacal insanities the attention is likely to be concentrated upon one region or upon one series of sensations, and physiological or pathological sensations undergo morbid magnification. To remove a region of disease may abolish or alter the sensations, but it cannot cure the morbid mind, for the delusion results from the insanity and does not cause it. Such an operation, however, may be followed by the shifting of the attention to another region. I have never seen the mental condition one whit improved by any procedure looking to the removal of sensations that held the attention. While assistant physician in the Blockley Lunatic Asylum, I used to be more enthusiastically hopeful than I am at present; and I tried upon one of the patients an experiment that, although not surgical in nature, may be regarded as analogous. The man complained of constant disagreeable sensations in the stomach, and became imbued with the idea that there was a kitten in his viscus. The large feline population of Blockley was called upon and a kitten was obtained. I administered an emetic to the patient, and showed him the kitten in a bucket. He seemed highly gratified, and went cheerfully out into the yard; but in less than an hour he returned to the ward and stated that he also had another object in his stomach, my recollection is that he said it was an eight-day clock. This is an illustration of the utter futility of surgical procedure in such cases.

Some surgeons and some neurologists think differently, however. Picqué and Feboré (*Arch. de Neur.* v. viii. 1899), say that sometimes physical suffering is wrongly interpreted by the patient, and that to correct the physical condition may lead to great improvement in mind. In patients with delusions secondary to hypochondriacal obsessions, however, while they claim that great improvement in the general condition may follow the arrest of a uterine hemorrhage, the correction of any other exhausting condition, or the prevention of

a debilitating intoxication, they admit that the primary mental disease will not be cured.

A series of cases in which operations were performed in hope of removing delusions is reported by J. Mallet ("*Indications opérations chez les aliénés.*" 1901). The first case shows the extraordinary length to which some surgeons would go in performing operations. The patient was a young woman with obsessions, who had been committed to the asylum on account of an attack of intermittent insanity. She thought that she had a deformity of her breasts, and this fixed idea persecuted her. In spite of assurances from various sources that her breasts were normal, she insisted upon having them removed. The medical attendant consented to her having this operation performed; but shortly afterwards the patient was seized with the idea that her fingers were deformed and ought to be removed. One is then rather surprised to learn that operations for the successive removal of individual phalanges were performed. This case shows how thoroughly futile are such procedures.

Case 2 was a girl of twenty-five years suffering with various obsessions. Her breasts were removed by a surgeon whom she deceived with a history of neuralgia. No benefit followed.

Case 3 was a woman operated upon for a strangulated hernia. An artificial anus was made. Soon after the operation she developed agitated melancholia with suicidal tendencies. The artificial anus was closed, and the patient recovered from her mental disease.

Case 4 was a woman with melancholia and hypochondriacal delusions. Alexander's operation was first performed, and then hysterectomy; because the patient's delusions referred to the abdominal organs. The operations were not followed by the slightest amelioration of the mental symptoms.

The fifth patient was a woman with hypochondriacal delusions, and several abdominal operations did her no good.

The sixth case was a man of twenty-five years of age who was suffering under paranoia with hypochondriacal delusions. He was operated upon for varicocele: then for the scar that resulted from this operation; and later for a hernia. There was no amelioration of the mental symptoms after operation; and, in fact, the patient developed tendencies to homicide and suicide.

It will be seen, then, that of these six cases, operation was followed by improvement or cure in but one; and there is not the slightest evidence that in this case the operation contributed to the cure. The author concludes that a patient suffering under obsessions with a solitary fixed idea should be operated upon, if there is a real lesion or malformation for which an operation is indicated. He then very wisely says that if the lesion is of little importance, one should abstain from operation; and that one should also abstain from operation if the fixed ideas are multiple. He thinks that a psychosis resulting from an obsession that is itself the result of an evident lesion will be improved or cured by operating. It seems probable to me, however, that the obsession is the result of the psychosis, rather than the psychosis that of the obsession. Mallet would not perform any operation for melancholia with hypochondriacal delusions, except possibly during the period of convalescence. He is uncertain whether surgery can be of benefit when there are persecutory delusions, especially in paranoia. He thinks, however, that they are rather contraindicated. From the cases reported by him, we can properly conclude that there is practically no evidence that operation is ever indicated.

7. OPERATIONS FOR HALLUCINATIONS.—A few years ago, Burckhardt made the rather remarkable suggestion that a surgical operation should be performed upon the brain in certain cases in which there are vivid and harassing hallucinations. In some cases he would remove the special-sense center; in others, divide the fibers of communication between the centers. He states that he has excised part of the verbal auditory center for hallucinations of hearing, with resulting diminution in the hallucinations and improvement in the mental condition. This operation seems excessively theoretical; for it assumes to know the seat of hallucinations with certainty. It is more than probable that insane hallucinations are of centric origin and arise in the cortex, but it is also known that they may be due to an oversupply of blood and that they may follow simple intoxications. Operation seems to promise so little and to be such a formidable affair that one would be inclined to apply to it the elder Mr. Weller's remark concerning



matrimony, in which he questioned whether it was worth while to go through so much to learn so little.

8. OPERATIONS FOR TRAUMATIC INSANITY.—By the term traumatic insanity may be meant either one of two distinct groups of cases. Those cases in which the traumatism has caused no gross lesion and in which, on account of trivial shock, mental or physical, the patient has developed a distinct neurosis, on the basis of which a psychosis has been constructed, belong to the first group. Such cases occur not infrequently after a railroad accident in which a person has been injured, possibly but slightly; has been subjected only to jarring and oscillation; or has merely received a mental shock. Such a person develops neurasthenia and often hysteria; and may then pass into a state of confusional insanity, melancholia, mania, stupor, hypochondria, or dementia. In this group of cases, operation is not to be thought of.

In the second group the injury, as Dr. A. B. Richardson (*Am. Jour. of Insanity*, July, 1903), remarks, is "the direct and sufficient" exciting cause. The insanity may arise immediately or quite soon after the injury, but more commonly it does not become apparent until weeks or months have elapsed. Patients with this form of traumatic insanity have almost all been hereditarily predisposed to insanity; indeed, Krafft-Ebing says that all have been, but this statement appears somewhat radical. One often finds that the friends or relatives of insane persons insist that a head-injury has been the cause of the condition. In discussing this matter some years ago, I made the following remarks: "It is often customary on the part of the relatives of a lunatic to assign traumatism as the cause, believing that by so doing they cover up the alleged disgrace of having an insane relative. The mere fact that an individual has had a blow or fall or shows a scar about his head is no proof that the insanity is traumatic in origin; and even when traumatism can be truly assigned as the cause, it is usually only one of many causes—an exciting cause acting, as a general thing, on a predisposed nervous system. The great predisposing causes of insanity are heredity, inebriety, and mental worry of some kind or other; and in the vast majority of so-called traumatic lunatics it will be found that one

or other of these causes has frequently, though not invariably, been present. I would not, however, deny the fact for a moment that even in the healthy brain an injury could establish the insane state." (The author's address on Surgery, delivered at the meeting of the Medical Society of the State of Pennsylvania, May 18, 1897.

An antecedent injury may have directly induced the alienation; it may have had no bearing at all upon the latter; or it may have produced an insanity by fear and shock, and not by creating a direct brain-lesion. Again, the head-injury, by increasing the individual's susceptibility to alcohol and to the effects of the sun, may, if this person drinks alcohol or exposes himself to the rays of the sun, be indirectly responsible for lunacy.

In insanity following an injury to the head there may be various supposed causative lesions: A fracture of the skull, with or without depression; the development of an exostosis; sclerosis or softening of the cortex; edema of the membranes or of the brain itself; cerebral hyperemia or congestion; thickening of the membranes; adhesion of the membranes to the skull, to each other, or to the brain; new growth; inflammation of the membranes; or minute, slowly developing, widespread, nutritive changes. The injury may be assumed to be the cause of the insanity if the insane condition becomes manifest almost at once or soon after the accident; but if the symptoms do not appear until long after the accident, the traumatism may be considered to be the directly exciting cause in some cases, and not in others. It may be blamed if, between the time of the accident and the appearance of the insanity, there has been a marked change in the patient's disposition, temperament, or character; if he has developed headache, insomnia, irritability, passionate outbreaks of temper, moodiness, or lapses of memory; if he has plunged into immorality or excesses in alcohol; if he has displayed a tendency to neglect business or family obligations; and if he has shown increased susceptibility to alcohol and to the sun. Sometimes epilepsy may develop during this period. (Richardson: *American Journal of Insanity*, July, 1903. The author's "Address on Surgery," delivered before the meeting of the Medical Society

of the State of Pennsylvania, May 18, 1897.) If there were none of these intermediate changes in the normal mode of thinking and way of acting, one cannot count the traumatism as causative. Many persons that have received severe head-injuries have shown these changes, but have never gone insane. I have been studying this point for a number of years, and have decided that quite a few patients that have been trephined for fracture or for meningeal hemorrhage have subsequently shown pronounced and permanent changes in character and disposition. Of the number that show such changes, many never go insane, but some do. Such an insanity is distinctly traumatic in origin.

The frequency of genuine traumatic insanity as compared with other insanities seems doubtful. Bevan Lewis thinks it quite common, and believes that a large number of recurrent insanities in males are traumatic in origin. While an assistant to Dr. John B. Chapin in the Pennsylvania Hospital for the Insane, I became interested in this subject; and, after considerable investigation, reached the conclusion that traumatism is not commonly a direct cause. It is the direct cause in probably not more than 2 per cent. of cases. Schlager claims 8 per cent. Kiernan found 45 traumatic cases among 2,200 lunatics.

Various forms of insanity may be developed by traumatism; automatism, stuporous insanity, mania with acute hallucinations and violent outbreaks, melancholia, paranoia, and organic dementia. Sometimes, in a middle-aged or even in a young person, the traumatism will be followed by a condition that seems to be identical with senile dementia. Traumatism may also induce a condition that closely resembles paresis; and some observers—notably Mickle—believe that it may induce genuine paresis.

Does traumatism produce any special type of insanity? I have never been able to persuade myself that it does. Clouston thinks that there is a special type, and maintains that typical cases have headache, vivid hallucinations, and motor symptoms (convulsions, slight hemiplegia, and speech-disorder); and that the mental condition is marked by irritability and impulsiveness, with advancing dementia or fixed delusions.



The prognosis of traumatic insanity is bad. Some patients get well after operation; others recover without operation. In some cases in which recovery followed trephining no causative lesion was disclosed by the operation. Some of the cases operated upon in which supposed causative lesions have been removed, have not recovered. That an operation sometimes cures, by removing a lesion, seems proved; for instance, by elevating a depressed portion of bone. This was demonstrated by Skae's celebrated case. Operation sometimes cures indirectly, by the effect of shock, etc.; and cure following an operation is sometimes merely a coincidence.

In which cases should operation be performed? In a case in which insanity has soon followed a head-injury, if the site of the trauma is indicated by a scar, a depression of bone, local tenderness, fixed headache, or some localizing symptom,—motor or sensory,—operation should positively be undertaken. In a case in which the insanity has developed later, in which the intermediate period between the injury and the development of the insanity has shown the change from the normal mode of thinking and way of acting previously alluded to, and in which the site of trauma is indicated by any of the evidences mentioned above,—operation should positively be performed. One should not operate upon a case simply because there is a dubious record of an antecedent fall or blow, which merely suggests the possibility of a traumatic origin for the insanity. In any case in which there are positive signs of increased pressure, it may be considered proper to trephine as a palliative measure.

9. ABDOMINAL, GYNECOLOGICAL AND GENITOURINARY OPERATIONS ON THE INSANE.—Some believe that such operations have a directly curative effect upon insanity. This is highly improbable, however; and the improbability becomes greater when one remembers that such operations do not cure epilepsy. Operations of this character may prove indirectly beneficial, by improving the general health, relieving pain, permitting sleep, and deviating the attention from morbid concentration upon a particular region.

Some insane women have pelvic disease. Some of them require operation, many do not. If an operation would be

esteemed necessary were the person sane, it is usually a proper procedure to undertake when the patient is insane; as the latter is as much entitled to relief from suffering as a sane person would be, and her mental condition may improve with the improvement in her physical state.

The diagnosis of pelvic disease in the insane is often difficult, as it must be made from objective phenomena alone; for the patient may volunteer no statements at all, or may make statements that are entirely unreliable. I have already discussed the question of operating with the idea of improving delusional conditions. We should lay it down as an absolute rule that no surgeon should remove a healthy organ because visceral delusions exist.

That laparotomy frequently does not benefit insanity at all is shown by a group of cases reported by Picqué (*Progrès méd.*, 1901, p. 209). In one of these, an ulcer of the stomach perforated. This patient had melancholia with suicidal tendencies. She recovered from the operation, but nothing is said of any improvement in her mental state. This author also operated upon a case of hæmosalpinx in a woman five months pregnant. She subsequently had a normal confinement, but no mention is made of improvement in her mental condition. He likewise operated upon a case of suppurative cholecystitis in a person suffering from alcoholism with suicidal tendencies, delusions of persecution, and hallucinations. There was recovery from the operation, but no improvement in the mental state is noted. The same remark applies to an operation for pyosalpinx and one for suppuration of the mastoid process, with cerebral abscess. As Picqué makes no mention of improvement in the mental condition following operation in any of these cases, one is justified in concluding that none took place.

A. T. Hobbs is a strong believer in operating upon the insane. He makes a report in the *Canadian Journal of Medicine and Surgery* for July, 1900, first commenting upon the difficulty in making the diagnosis in such persons. He shows that often there is no pain, although a like condition would produce pain in sane persons; and he points out how frequently, even in serious disease, an insane patient makes no complaint whatever. In making a medical examination he often gives

ether, but considers chloroform dangerous. He is impressed with the small amount of shock that follows operation on the insane, and with the fact that postoperative pain is so slight. Out of 211 insane women, 179 exhibited well-marked signs of pelvic disease. He operated upon 116 of these, with 2 deaths. Ninety-eight of these had tubal and ovarian disease of inflammatory character, including peritonitis. Of these, 51 per cent. were restored to mental health and 7 per cent. were markedly improved mentally. In the group of non-inflammatory troubles,—tearing of the perineum, uterine displacements, tumors, etc.—25.5 per cent. regained mental health and 31 per cent. improved. There were 70 of these non-inflammatory cases. Of the 112 recoveries, 51 patients had been insane for two years. This is the best set of results given by any author with whose paper I am familiar, in fact, these results are extraordinarily favorable.

Ernest Hall (*Pacific Medical Journal*, Feb., 1899) has reported the case of a woman fifty-two years of age. She was suffering from her second attack of melancholia, this attack having lasted three years. He operated, and found a retroverted uterus bound down by firm adhesions. The clitoris was loosened from adhesions, the uterus was dilated and curetted, the abdomen was opened, and omentum was found adherent to the belly over a large area. The pelvis was a mass of adhesions, and it was with great difficulty that the uterus could be freed from the sacrum and the bowels. The right ovary could not be found; but the left ovary and tube were removed. Ventro-fixation of the uterus was performed, and the abdomen was closed. On recovering from the anesthetic, the woman's mental state was found to be already improved; and subsequently to the third week after operation, she exhibited no indications of mental trouble. Nine months later, she was well, and had gained thirty-five pounds. It is, of course, doubtful whether this recovery will prove to be permanent, as it was the patient's second attack of melancholia, and there was a strong family history of insanity.

I have operated three times for strangulated hernia in insane men. Each one suffered from secondary dementia, and not one showed mental influence. In a case of empyema of



the gall-bladder in a patient with chronic delusional insanity distinct temporary improvement followed operation. In an operation for acute appendicitis performed upon a man suffering from melancholia and in the sixth month of a first attack, the melancholia gradually passed away within two months of the operation, but I do not think this was because of the operation.

The most notable improvement I have ever seen follow operation took place in a female the victim of hypochondriacal melancholia, who suffered from cancer of the breast. The improvement after operation was immediate and decided and lasted for four months, when she became as before.

J. Colombani ("*Chirurgie des Aliénés*," 1902) reports a urinary disease, and claims that operations for the latter frequently improve the mental trouble and sometimes remove it entirely. He believes that psychoses may be directly produced by disease of the genitalia; and that if they are so caused operation is indicated. He admits that the presence of the stigmata of degeneracy should make the surgeon careful about interfering; but thinks that when hypochondriasis is directly dependent upon the local disease, the patient will be greatly benefited by operation.

Royet read a paper on the Relation of Mental Diseases to Diseases of the Nasopharynx, before the Thirteenth Congress of Alienists and Neurologists. In this he claimed that treatment of and operation upon the disease of the nasopharynx may remove the mental disorder. He advocates systematically examining the nasopharynx of every insane patient.

In spite of these commendatory remarks from various specialists, I still believe that it should not be the rule to perform operations upon the abdomen, the genito-urinary organs, or the nasopharynx, with the hope of curing the insanity; but I freely admit that such operations should be done when the disease is of sufficient severity to call for interference, and that in some cases the performing of such operations may be followed by improvement in the mental condition.

## MYSTIC MEDICINE

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When I accepted the invitation to read a paper on this the Twentieth Anniversary of the foundation of the Philadelphia Neurological Society, my intention at first was to present the results of some clinical and pathological observations in the field of nervous syphilis. It appeared to me, however, that the occasion called for some topic of general rather than of special interest. It so happens that the department of medicine to which our attention is devoted has in all ages presented an inviting field for occult and mystic forms of practice. In no field have the latter profited more, in no soil have they thriven so luxuriously. Under varying names and varying forms, mystic medicine has ever engaged and swayed the minds of men, and it has seemed to me that upon an occasion such as this, a consideration of the subject might prove alike interesting and profitable.

Since time immemorial, superstition and magic have played a rôle in the treatment of disease. Four thousand years ago in Egypt, religious and mystic rites were practiced in dealing with the sick. Prosper Alpinus informs us that the Egyptian healers subjected their patients to mysterious manual operations, that they enveloped them in the skins of sacred animals and conveyed them into holy places to be visited by dreams and inspirations. The Hebrews practiced the healing power of bodily contact,—cured by the laying on of hands,—while the Lybians stretched their bodies on the bodies of the sick. It is hardly necessary to allude to the pythonism of the Greeks—how the pythoness, inspired by the prophetic fumes, made known the will of Apollo, how her disconnected words and cries were construed into advice for the healing of the sick or for other affairs of life. Similar practices, in which hysteria and deception are commingled, are still found among the north Asiatic races, and, for that matter, among all the savage races

of the world. Shamanism, as practised among the Ural-Attaic people, is a good illustration. The Shamanic priests know the secret of the coming and departing of evil spirits. Their offices are generally called in requisition in cases of sickness and death, which are ascribed to the presence or ill-will of demons. By shouts, incantations, by the beating of drums and blowing of horns, the demon is supposed to be driven out. Quite frequently the priest will work himself into a condition of hysteria and even of trance. In Siberia the priest usually sucks the part of the body of the patient which aches the most, and finally takes out of his mouth either a thorn, a bug, a stone, or some other object, which he then asserts to have been the cause of the pain.

Manipulations and frictions are, of course, incidental to many forms of mystic treatment, and it is not strange that at times good results follow such procedures. Thus Asclepiades, it is said, quieted by manipulations the mild insane, and when the manipulations were carried to excess, the patients fell into a lethargic sleep. Coelius Aurelianus prescribed friction by the hand for the cure of pleurisy, and also gave instructions for the manipulation of epileptics. Rubbings, combined with the attendant and inevitable suggestion, have been practised since time immemorial, and it is not strange that under such circumstances the idea should sooner or later be born that something passes from the operator to the patient,—some unseen entity or agency. Gradually in the dawn of modern civilization, this view began to assume definite shape. In the fifteenth century Pomponatius, in the sixteenth century Agrippa, the famous Paracelsus, and later Bacon, Cardanus and Van Helmont became the advocates of the doctrine that the body possesses an influence of magnetism. They believed that there was something which acted beyond the body, that this something acted in accordance with the will of its possessor and that by means of it, various qualities could be imparted and various changes brought about in the bodies of others. Thus the theory of animal magnetism and the healing of the sick by magnetic procedures were of predestined birth. They were the inevitable outcomes of man's psychic structure. It is but natural that under such circumstances



man should have turned his attention to the metals and to have attributed to them the power of transmitting or imparting mysterious properties. Aristotle, Galen, Paul of Ægina, Paracelsus and others believed that metals possessed great virtues in the treatment of disease, though their curative power was in part ascribed to the magic inscriptions which they bore. The magneto- and metallotherapists of later days are but imitators. That magnets, natural and artificial, should in our own times have played a rôle in the treatment of disease was but a natural result. That Lenoble in 1754 and Hell twenty years later should have brought about cures by magnets, is a matter of necessary historic sequence, and that Mesmer, learning of the wonderful results which Hell had brought about in his own person, should have become an ardent advocate of the treatment of disease by the use of magnets, and that he should later on have enlarged his views so as to bring into relation with his magnetic theories the heavenly spheres (to which he attributed a direct influence over animal bodies), is a psychological transition easily comprehended. A well defined theory of animal magnetism was a necessary corollary. I will not take up time by a recital of the well-known facts with regard to Mesmer's methods of treatment. How, in Paris, after having established himself in magnificent and fashionable quarters, he treated patients by seating them about a wooden vessel, or "baquet," with which the patients were in direct or indirect contact, how he produced the most astonishing effects and how his occult procedures attracted the attention not only of the learned men of Paris, but also of the government, is a story too well known to need repetition. How he evaded in 1784, the commission appointed by the French government to investigate his claims, and how the commission were obliged to investigate his theories and practices with the aid of d'Eslon, Mesmer's pupil and disciple, is likewise a matter of history. What a source of satisfaction it is to remember that this commission, constituted as it was of such men as Bailly, Lavoisier, Guillotin, Poissonier and our own Franklin, stood out against the great wave of enthusiasm and mysticism that swept Paris, and maintained a sane interpretation of the observed facts. The facts were freely ad-

mitted by the commission, but the connection of the facts with animal magnetism was denied. The moral effect of this adverse report was so great that Mesmer was obliged to leave Paris and retire to Frauenfeld. Here various physicians of Germany—of Bremen, Karlsruhe, Heilbronn, Strassburg, Berlin and elsewhere accepted his doctrine and followed his practices. Indeed, the Prussian government in turn took up the matter, and in 1812 Wolfahrt was sent to Mesmer to study animal magnetism. He soon returned to the capital an enthusiastic advocate of Mesmer's doctrines. It is not necessary to repeat the story of the Abbe de Faria, who, in France, in 1814, again stood for a rational interpretation of the phenomena. In vain he pointed out that the phenomena observed in the so-called magnetized subjects were not due to a fluid emanating from the magnetizer, but had their origin in the imagination of the subject and were to be sought for in the subject himself. Notwithstanding, some years later, Dupotet actually introduced the practice of Mesmerism into the French hospitals. In 1826, however, a second and in 1837 a third commission were appointed to investigate the subject and both reports being adverse to its practice, the French Academy resolved no longer to concern itself with the subject.

While mesmerism was at its height, three schools of animal magnetism were developed:

First, the school to which Mesmer himself belonged, and which asserted that the effects obtained were due to physical agencies alone. The means employed were friction, touches, passes and grasping. The resulting phenomena were explained on the theory that a fluid or ether passed from the magnetizer to the magnetized, or vice versa. The adherents of this school were the original advocates of "animal magnetism."

Second, the school of Barbarin, the adherents of which maintained that faith was the principal factor required, in consequence whereof they were known as "spiritualists." In their minds all physical means were merely accessories. They asserted that the effects attributed to animal magnetism were the products of the resolution or will of the operator, and that

the latter could produce identical effects, whether he were in contact with, or at a distance from, the patient.

The third school, that of the Marquis de Puysegur, occupied a position midway between the others; explaining the results obtained, by physical or psychologic means, as the case required.

The character of the subject will permit of merely a cursory reference to the foundation of modern hypnotism by Braid. Braid, it will be remembered, in 1841 witnessed the public demonstrations of Lafontaine in Manchester. The circumstance that Lafontaine used, besides passes, the expedient of fixing the eyes of his subjects upon a bright object, led Braid to study especially the effects of this fixation, and he concluded that the ocular fatigue thus caused sufficed to bring about the magnetic sleep: he held the object immediately before and somewhat above the eyes of the subject. In his work upon "Neurypnology," published in 1843, he, like Faria, opposed the theory that any force passed from the magnetizer to the subject. He showed that he could induce the sleep in himself without the assistance of any other person, and also pointed out that many of the phenomena observed were dependent upon suggestion. Grimes in America obtained independently results similar to those of Braid, as did also Liébeault in France. In 1866, Liébeault published a work on artificial sleep and related conditions. Like Faria, he recognized the subjective nature of the hypnotic phenomena. Bernheim, who attended in 1882 Liébeault's Policlinic at Nancy, became an enthusiastic disciple and an active advocate of the therapeutic application of hypnotism. In 1875, Charles Richet published in detail an essay on artificial somnambulism which led Charcot to study extensively the phenomena of hypnotism as induced in the hysterical cases of the Salpêtrière. The results were embodied in a large volume by Paul Richer, under the title "Clinical Studies in Grand Hysteria or Hystero-Epilepsy." Charcot further, in 1882, made an extensive report to the Academy, in which he analyzed the various phenomena observed and separated them into three fundamental groups, namely, those of the cataleptic



state, those of the lethargic state, and lastly those of somnambulism.

Neither time nor the object of this paper will permit a detailed discussion of this subject. Suffice it to say that at the present time there are two schools, so to speak, of hypnotism—that of Nancy, founded by Liébeault and Bernheim; and that of the Salpêtrière, founded by Charcot and his pupils. Charcot regarded the symptoms of hypnotism as those of a neurosis and as belonging to the domain of hysteria. This also is the attitude of his followers today. Thus, Babinski says that *grande hystérie* is a *sine qua non* of *grande hypnotisme*, while Gilles de la Tourette declares that hypnotism is nothing more than a paroxysm of hysteria which is provoked instead of being spontaneous. Bernheim, on the other hand, insists on the essentially psychic character of hypnosis; he denies that it is a neurosis, and finds only a superficial resemblance between it and hysteria.

I place myself unhesitatingly and unequivocally on the side of the Paris school. As in hysteria, the phenomena of hypnotism are readily classifiable into sensory, motor, psychic and somatic. The sensory phenomena are always those of impairment or loss. In light hypnosis, there is merely a diminution of sensation, a hypesthesia; in marked hypnosis an abolition of sensation, an anesthesia. As in hysteria, the sensory loss may be widely distributed or sharply delimited. Further it is interesting and most significant to note that, when in consequence of a suggestion, a palsy occurs in a hypnotic subject, not only does paralysis of motion supervene, but also paralysis of sensation. In other words, just as in hysteria of ordinary origin, a true segmental anesthesia becomes spontaneously established. The special senses also may show a similar involvement.

The motor phenomena of hypnotism in turn are indistinguishable from those of hysteria. This is clearly the case with the suggested palsies as well as with the other motor disturbances, fixation, tremor, spasms or convulsions. Nineteen years ago, A. J. Parker and myself showed before this very society how readily convulsions could be induced. That convulsions are of frequent spontaneous occurrence in the ordi-

nary hypnotic state is a matter of common experience. Indeed, severe convulsions may come on even before the hypnosis is fully established. The hypnotherapists tell us that the tendency to convulsions should be met by countersuggestions and especially by repeated assurances before the hypnosis is undertaken. Unfortunately, these precautions may prove unavailing. Especially is this the case if during the séance, a suggestion is made which is revolting, unpleasant or decidedly opposed to the moral and emotional tendencies of the subject.

As in hysteria, the palsies and anesthetics of hypnotism are to be referred to a contraction of the field of cortical activity; a similar explanation holds good for the other psychic phenomena. This contraction or reduction is seen typically in the impairment or abolition of the function of association and of the function of the will. Thus, the subject is unable, because of impaired association, to correct the erroneous conceptions that the suggestions of the operator arouse in his mind; for instance, when he accepts the suggestion that he is in the midst of a garden of flowers when in reality he is in a room, it is because impressions made upon his senses do not reach the field of cortical activity; or when he accepts a suggestion that is intrinsically absurd and out of keeping with his past experience, it is because the memory of these experiences and of the actual facts of his existence are not aroused and do not enter his field of consciousness. Owing to the great depression of cortical function, association is for the time being lessened or even destroyed. It is not surprising, finally, that in hypnosis there is a lessening in that summation of cortical activities which we term the will; the latter is at first impaired and finally abolished. Intrinsically, the state of hysteria and the state of hypnosis are the same. Not even with regard to the phenomena of suggestibility does hypnosis differ from hysteria, for hysterical patients are notoriously open to suggestion in the fully awake condition.

Other phenomena presented by hysteria and hypnosis are also capable of ready explanation. In autohypnosis especially do we find an important series of facts. Thousands of years ago the Indian fakirs fixed their eyes, as they do today, upon the point of the nose; the monks of Mount Athos fixed their

eyes upon the navel. Other races and other times made use of magic mirrors, of crystal globes, or of vessels containing water. The monotonous chanting of incantations embodied the same principle of the continuous sensory impression. That under these circumstances illusions of sense should occur and that hallucinations should spontaneously arise, is but natural. Autohypnosis, like the ordinary form of hypnotism, relieves the cortex of the corrective restraint imposed in the waking state by the contact of the senses with the outer world. Hallucinations, the product of the unrestrained—the uninhibited—activity of the sensory and associated areas, of necessity arise and pursue an untrammelled course. Herein lies the explanation also of the phenomena observed in the clairvoyant or spiritualistic medium. Bearing in mind the increased suggestibility, always a part of the hypnotic state, it is not strange that the hallucinations should follow the trend indirectly suggested by the questions of the observer. Instead of dealing with a fictitious past or an unreal present, the hallucinations may project themselves into the future, and thus assume the form of prophecies. Of similar value are other phenomena, such as telepathy, seeing and hearing at a distance; transposition of the senses, during which the subject may hear with her stomach or read books through her back; conversations in foreign, and to the subject totally unknown, tongues; and, lastly, even the invention of entirely new and unheard of languages.

The phenomena of hypnotism are beyond all doubt pathologic. So evidently is this the case that it is difficult to conceive that physicians can be found who entertain the opposite view. On the other hand, it is perhaps not surprising that in that hot-bed of hypnotism, the Nancy school, and by some of its advocates elsewhere, this rational view should be indignantly rejected, as it is by Liébeault, Bernheim, Liégois, Baunis, Forel, Löwenfeld, and Wetterstrand. The Paris school, on the other hand, promptly recognized the identity of the symptoms presented by hypnotism with those of hysteria. It does not weaken this position, to reproach the Paris school, as do Bernheim, Wetterstrand, and others, with study-



ing hypnotism in cases already hysterical. The identity of the catalepsy and lethargy induced in animals, with the catalepsy and lethargy induced in the patients of Salpêtrière, is a sufficient answer. To say that the great majority of human beings are susceptible of hypnotism, is to say that the great majority of human beings may under given conditions become hysterical, a truth which our ever-increasing experience with the "traumatic neuroses"—i. e., traumatic hysteria—most clearly shows. Again, the contagiousness of hysteria—so old a story as not to bear extended repetition—is abundantly demonstrated as to hypnotism by Bernheim's own clinic. Here the patients fall asleep with surprising ease. They see daily large numbers of hypnotizations. Each awaits his turn with the expectation of falling asleep. Each is impressed with the wonderful and mysterious power of the operator, his faculty of imitation is unconsciously stimulated, and when his turn finally comes, he is so well prepared that the slightest verbal suggestion suffices.

If, as I believe, the state of hypnosis is merely an artificially induced hysteria, the question arises, how can this artificially induced hysteria cure? Let the claims made by the advocates of this method of treatment, answer the question. In the first place we find enumerated a host of functional nervous affections. Thus, Forel asserts that hypnotism is efficacious in pains of all kinds—headache, neuralgia, sciatica, toothache that does not depend upon abscess, insomnia, functional palsies and contractures; further that it is palliative in organic palsies and contractures; that it acts very favorably in chlorosis, menstrual disturbances (both metrorrhagia and amenorrhea), loss of appetite and all nervous disturbances of digestion, constipation and diarrhea (when the latter does not depend upon fermentation), psychic impotence, pollutions, masturbation, sexual perversion, alcoholism, morphinism, muscular and articular rheumatism, neurasthenic complaints, stammering, nervous disturbances of vision, blepharospasm, pavor nocturnus of children, nausea, seasickness, vomiting of pregnancy, enuresis nocturna, chorea, nervous coughing, hysterical disturbances of all kinds, inclusive of hystero-epileptic attacks, anesthesia, bad habits of all kinds, and epilepsy! Wetterstrand, Bern-

heim, Berillon, Barwise, Herman, Drayton and Rose also speak of treating epilepsy successfully. Van Renterghem and van Eeden, who enumerate in addition among affections benefited by hypnotism, anemia and psychic depression, were less fortunate in chronic alcoholism, stammering, chorea, hypochondria, nervous asthma, habitual constipation and masturbation, and obtain no result or no noteworthy result in epilepsy, in chronic articular rheumatism, tabes, writer's and piano-player's cramp, organic disease of the nervous system, and internal diseases. Wetterstrand, Bernheim, van Renterghem, van Eeden, Dumontpallier, and others report satisfactory results in chorea. Löwenfeld affirms success in nervous coughs, asthma, and affections of the heart—including even dilatation of the heart. He also, together with Schrenk-Notzing, Bernheim, Fuchs, Wilkin and others, reports favorable results in sexual perversions.

Certainly, organic nervous diseases would seem to offer a most unfavorable field for hypnotism. Notwithstanding this, Bernheim, Fontan, Grossmann, Lloyd Tuckey, and others assert the achievement of very noteworthy results in both organic brain disease (e. g., local lesions) and organic cord disease (e. g., tabes and myelitis). As further instances of the character of the assertions concerning affections more or less successfully treated by hypnotism, we may mention the following: Brain abscess (by Starck), organic hemiplegia (by Bernheim), hemorrhoids (by Brown), arthritis (by Desplats), albuminuria (by Desplats), scurvy (by Bertschinger), periostitis (by Ringier), chronic articular rheumatism (by Ringier, Behring and Delius), carcinoma of the kidney (by Ringier), post-diphtheritic palsy (by Luys), sycosis (by Berillon), paralysis agitans (by Osgood), paranoia (by Bauer and Ringier), trichinosis (by van Renterghem), and osteomyelitis (by van Renterghem). This list, it need not be added, could be still further and greatly extended, were it to serve any rational purpose.

Without pausing to consider at this time the possible explanation of these remarkable claims, let us turn our attention temporarily to another field, namely that of metallothrapy. The remarkable revival of this method of treatment in rela-

tively recent times led to statements that were alike astonishing and appalling. I have already referred to Mesmer's early and successful use of magnets in the treatment of disease. Following him various other physicians, Unzer, Heinsius, Weber, Manduyt, Anry, Thouret and Wichmann reported cases successfully treated by metallotherapy. It remained for Burq, however, to erect it, in 1849, into a well established method. In his thesis, published in 1851, he described his first experiments in regard to the influence of metals upon anesthesia, namely, the production of tingling sensations, heat, perspiration, redness, and the reappearance of sensation. Burq was vigorously opposed; but, notwithstanding, succeeded, after a struggle of almost thirty years, in attracting to his method the serious attention of scientific men, and finally the Société de Biologie appointed Charcot, Luys and Dumontpallier a commission to investigate the subject; later Landolt, Gellé and Regnard were added to their number. Burq maintained that the application of metals to a limited part of the surface of the body was capable of causing the disappearance of the paralysis of sensation and motion produced by hysteria. He further asserted that the same metal is not suitable for every individual; that a special metal is required in each given case. He also believed that the *internal* use of metals produced the same therapeutic effect as the application of the metal to the skin. He went so far as to assert that the application of the metallic discs not only causes general sensation to return, together with dilatation of the capillaries and rise of temperature in the paralyzed limb, but also that it cures blindness, deafness, loss of smell, and loss of taste. For instance, in a case in which one-half of the tongue was not sensitive to colocynth, the tongue became perfectly normal after the application of plates of iron. Patients in whom gold produced similar results, remained entirely insensible to iron, copper and zinc; while in cases in which the latter metals were effective, gold was without result. The same facts obtained when the metals were used internally.

The commission reported in 1877, first, concerning the phenomena resulting from the application of metals to the surface of the body of patients suffering from disturbances of



sensation. On applying a disc of metal, generally of small dimensions,—a piece of money, for example,—on an hysterical patient attacked by permanent (*sic*) hemianesthesia, a return of sensibility was effected at the end of ten or twenty minutes in a zone several centimeters above and below the site of application. This return was preceded by tingling, pricking, and a kind of "trouble in the perception of sensations," as a result of which a cold body like ice appeared hot. There was observed at the same time a local elevation of temperature in the part, appreciable by a thermometer, and, in the case of the upper extremities, an increase of strength that could be demonstrated by the dynamometer. The extension of the sensitive area was more or less progressive around the metal, subsequently it involved the entire limb, and finally the whole anesthetic side. At the same time there was effected a dilatation of the capillaries; when a pin puncture was made before the application of the metal, the puncture would not bleed, while if a puncture were made after the application, the puncture not only bled, but the escape of blood was considerable.

The experiments with the *internal* administration of the metals seemed no less convincing than the preceding. A patient sensitive to gold took each day a dose containing two centigrams of gold-and-sodium chlorid. Eight days later there was a complete return of sensibility, general and special, restoration of the muscular strength, a considerable improvement in the general condition, and a reappearance of the menses after two years' cessation! Another patient, equally sensitive to gold, experienced like good effects from the internal administration of the gold salt. A third patient was placed on pills of copper dioxid and water of Saint-Christau, for which there were soon substituted pills of copper albuminate, containing each two centigrams. The number of these pills was gradually increased to five. There was first a very marked improvement, but the treatment having been suspended by reason of the appearance of "gastro-intestinal accidents" (!), the patient very quickly lost that which she had gained. When the intestinal disturbance had passed away, the water of Saint-Christau was resumed, and at the end of ten days the patient had made a satisfactory recovery. Two

hystero-epileptics, sensitive to gold, were likewise submitted to an appropriate internal medication; sensation and motion became normal and the hysterical attacks disappeared.

The committee also noted a new fact, which had escaped Burq, namely, the so-called "phenomenon of transfer," i. e., that while the sensibility and muscular force reappeared on the paralyzed side, the normal side lost in general and special sensations, in temperature and strength. The committee further believed that hemianesthesia from organic lesion could also be cured. Thus, anesthesia of ten years' duration and due to cerebral lesions was said to have yielded to gold. In two cases of hemichorea and hemianesthesia due to old lesions and in which the anesthesia was permanent and never varied, the application of the metal was as successful as in hysteria. A hemianesthesia of even thirty years' duration disappeared, though the return of sensibility was delayed for three hours!

Charcot endeavored to explain these phenomena as the result of an electric current developed by the contact of the metal and the skin. Rabuteau explained them by a chemical action which he believed to take place between the metal and the moisture of the skin. It was also noticed that after the sensation returned from the *internal* use of the metal, the original anesthesia could be made to reappear by a fresh application of the metal *externally*. Charcot gave to this symptom the name of "metallic anesthesia."

Charcot, and after him Debove, after prolonged experiments with metals, electricity, and magnets, arrived at the conclusion that the last-named agents, namely the magnets, were more powerful and yielded more constant and more successful results. Therefore, subsequently magnets only were used. Thus the snake with its tail in its mouth reappeared, for Charcot had only arrived at the stage at which Mesmer began.

That the remarkable statements of this commission having for its spokesman so great a man as Charcot should have attracted attention abroad, is but natural. Westphal visited Charcot in 1878 and later investigated the subject in Berlin. True, he obtained under like conditions results similar to those of the French investigators, save that his successes were

perhaps not as striking and required a longer time. Westphal, however, did one thing that the French investigators did not do, and that is to make a simple cross experiment. He found that he could obtain the same results with mustard plasters! Bennet again did the same thing, for he proved that wooden buttons were equally as powerful as magnets!

With these facts before us, shall we blame Elisha Perkins, who, at the close of the eighteenth century, practised a system of metallotherapy all his own? Perkins, it will be remembered, invented metallic tractors, so called because they were supposed to draw disease away. The tractors consisted of two needles, one resembling brass and the other resembling steel, about three inches long and pointed at the ends. The needles were united and in using them, the pointed ends were drawn over the part of the body affected. They were chiefly used in local inflammations, pains in the head, face, teeth, rheumatism and like diseases. The points were applied to the affected part and then drawn over it in a downward direction for about twenty minutes. Perkins obtained considerable support for his method of treatment in the United States, and it was also quite favorably received abroad. In Copenhagen physicians endorsed his method, while in London a Perkinsian Institute was established for the treatment of the poor. The list of persons asserted to have been cured by the tractors amounted at one time to an almost fabulous number. However, a few years after Perkins' death, the wonder-working needles disappeared and were heard of no more. Haygarth, of Bath, obtained identical results with wooden cylinders made to imitate the tractors, and the practice could not survive the consequent ridicule.

On what basis are we to explain the claims made by the advocates of hypnotism, metallotherapy and like methods of treatment? I have elsewhere pointed out that hypnotism is attended by certain dangers to the person experimented upon, i. e., certain dangers inherent in the measure. A far more important aspect of the subject, however, concerns us, and that is the danger to the experimenter. I have already alluded to the fact of the contagiousness of hypnotism, how each patient is impressed by the hypnotic process in the others.



Indeed, it is not unusual in a group of subjects for others than the one to whom the suggestion is addressed to fall asleep at the same time. It is true that the experimenter does not suffer from contagion in this form, but he suffers from contagion nevertheless. Soon or later, if he but immerse himself in hypnotism long enough, he acquires the mental attitude of his subjects: namely, that of willing receptivity. He becomes possessed of an attitude of mind in which he accepts too readily as fact that which only seems to be fact—is too willing to believe that which he wishes to believe. In other words, he himself passes into a condition of abnormal susceptibility to suggestion; he becomes the victim of auto-suggestion, and, in addition, reacts unconsciously to the communications of his subject. His attitude does not differ from that of the believer who sits in the spiritualistic circle, and who reacts alike to the suggestions of the medium and his own spontaneous mentation. That the faculty of critical judgment suffers in some experimenters, there is abundant reason to believe. In what other way are we to explain such statements as those affirming the successful treatment of genuine epilepsy, and of organic diseases of the nervous system or of organic affections of other organs? In what way are we to explain Charcot's claims as to metallotherapy? Physicians, alas, do not differ from the common man in their love for the mysterious. Like the common man they time and again become the victims of self-deception and auto-suggestion. The spell of mysticism beshrouds thought and makes accurate thinking and seeing impossible. Operator and subject react unconsciously upon each other in an endless chain of suggestion and auto-suggestion.

Shall we devote serious thought to lay practices of mystic methods? Of what avail would be a discussion of faith-cure, Christian science, Dowieism and the like? Surely the field is well preempted by paranoiacs, mountebanks and dupes. Mystic medicine is as old as the race. Its forms, it is true, are ever changing. In the long ago, it was exorcism and incantation. In the present it is exorcism and incantation under new names. The methods are the same, the dress only is changed. We need not turn to ancient peoples, to savage

racers or to medieval times for examples. No one will deny that in our own age and our own much vaunted civilization there are large numbers of lay persons who are earnest advocates of religious and superstitious methods; and yet before we condemn them too seriously, let us remember that the medical profession itself is not free from the charge of having at various and indeed quite recent times, countenanced procedures whose sole recommendation was the mysticism involved. I do not refer merely to hypnotism, Perkins' tractors or metallotherapy. Who amongst us does not recall the Bergeon treatment of phthisis? There was hardly a practitioner of moment in this great country who did not during the sway of this pitifully absurd practice, insufflate the rectum of his patients with sulphuretted hydrogen. It was believed that the sulphuretted hydrogen killed the tubercle bacillus, but it was also insisted upon that the sulphuretted hydrogen must be obtained from some natural sulphuretted spring water, otherwise the remedy would not be efficacious. Many of my hearers will recollect how in the wards of our hospitals patients were exhibited as instances showing the remarkable success attending this method of treatment, and how, indeed, one Philadelphia physician betook himself to the capital of the nation to there establish a great institution for the treatment of consumptives by this new method. But let us restrain our smiles. I feel the hush of silence fall upon our own circle when I speak of the all too recent treatment of locomotor ataxia by suspension,—a suspension which acted not upon the spinal marrow of the patient, but, alas, upon the mind of the doctor.

## Periscope

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### CENTRALBLATT FUER NERVENHEILKUNDE UND PSYCHIATRIE

(Vol. 26, 1903, October.)

1. Contributions to the Knowledge of Iris-movements. Dr. BUMKE.
2. On Disturbance of the Time-sense in the Insane. W. VON BECHTEREW.
3. On the Outward Signs of Habitual Onanism in Boys. W. VON BECHTEREW.

1. *On the Movements of the Iris.*—This is the third instalment in Bumke's series of studies of less familiar eye-reflexes. The dilatation of the pupil induced by sensory irritation—a pin-prick or weak faradization upon some spot of skin—may also occur from psychic states such as fright. Every muscular effort, or even the idea of such effort, may cause the same iris movement. With the Westien lens it is found that every psychic effort also affects the pupil thus, as pointed out by Exner; and in counting the strokes of a metronome rhythmic movements of the pupils occur. These several phenomena have one mechanism which is independent of the sympathetic. Braunstein showed that in the dog they depend upon a cortical center which, influenced by sensory stimuli, inhibits the oculomotor center. Abeyance of this cortical inhibitory center accounts for the myosis of sleep. Bumke has found this reflex dilatation of the pupil in hysterical and maniacal patients; but in dementia præcox, particularly the katatonics, the phenomena were absent, excepting in remissions. They failed also in two cases of imbecility.

2. *Time-sense in the Insane.*—Von Bechterew says this is the best known of the so-called "central senses." Its commonest disturbance is seen in patients who cannot place themselves in time. Less commonly a long period seems shrunk to minutes; or a moment's space seems endless. Von Bechterew gives a full account of a case showing the shrinking of time-conception; he speaks of another alcoholic who thought it took a hundred years to ride a few miles.

3. *Signs of Onanism in Boys.*—Nothing new is contained in this paper, and no conclusion reached.

(Vol. 26, 1903, November.)

1. Contributions to the Knowledge of the Iris Movements. Dr. BUMKE.
2. Concerning the Prognostic Signification of Katatonic Manifestations. R. GAUPP (Heidelberg).

1. *Iris Movements.*—This is the fourth chapter of Bumke's studies and deals with the cortical pupillary reflex which Haab described in 1885. This reflex is obtained by having the patient look at the wall in a dark room then think of a flame which has been placed near him, whereupon the pupils will contract. Heddaeus explained this not as cortical but as an unconscious accommodative reaction. Bumke has been unable to obtain this reflex independently of accommodation, convergence, and the orbicularis phenomenon. He says the true psychic reflex of the pupils is a widening of them.

2. *Katatonic Manifestations.*—Gaupp quotes Ernest Meyer who reported that of forty-six cases of katatonic symptoms, fourteen were cured, eleven recovered with defect, and twenty-one became demented; Meyer considering a man cured if able to pursue his calling. The favorable symptoms were acute or subacute beginning, slow cessation of the symptoms, or severe stupor without other katatonic symptoms.



Gaupp questions Meyer's conclusions, saying that, of course, the stupor of maniacal-depressive insanity, etc., is curable, but that stupor with muscular tension is more unfavorable than the apathetic variety. At the Heidelberg clinic, patients with passive stupor or with acute or subacute katatonic excitement recover, but they always have subsequent attacks in which mental enfeeblement of a distinct form appears.

(Vol. 26, 1903, December.)

1. Analytical Researches Concerning the Psychology of Hysteria. WILLY HELLPACH.

2. The Question of Combined Psychoses. R. GAUPP.

1. *Psychology of Hysteria*.—Hellpach eulogizes the work of Oskar Vogt saying it is the first actual psychological analysis of hysteria; also that of Möbius in his classical differential diagnosis between hysterical and neurasthenic symptoms; but he thinks that a new side of the problem, the genetic, is about to attract attention. Hellpach seems to like the common teaching that hysteria is an exaggeration of suggestibility and, addressing himself to the definition of suggestion, concludes that its criterion is complete senselessness and extravagance (*masslosigkeit*). Another conclusion is that hysteria is characterized by a quantitative and qualitative disproportion between the emotional experiences and their resultant manifestations.

2. *Combined Psychoses*.—Gaupp says this term was first used by Krafft-Ebing to mean the concurrence of two mental diseases in one patient. Examples of it are combination of imbecility and acquired mental diseases; epilepsy and chronic psychoses; paranoia and delirium tremens; imbecility and hebephrenia—the most important being the combination of alcoholic psychoses with imbecility or acquired diseases. The connecting links between any two psychoses, such as Jolly showed to exist between mania and acute confusion, are not properly combined psychoses, nor is dementia praecox an example of it simply because there may be a mixture of excited, depressed and delusional phases.

Those who, like Wernicke, classify merely according to symptomatology, consider most insanities to be examples of combined psychoses. The question of the combination of hysteria with psychosis, has been debated and is still doubtful. Senile changes in imbeciles and the insane are also difficult to determine. Genuine epilepsy has been seen to pass into paresis. Paresis and paranoia, and paranoia and epilepsy have been seen in combination.

(Vol. 27, 1904, January.)

1. The Study of Dementia Praecox. ERWIN STRANSKY (Vienna).
2. A Delirium in Connection with the Abuse of Hyoscine. C. F. VAN VLEUTEN.

3. On the Idea of "Anregung" or "Perseveration" of the Cortical Processes. RAGNAR VOGT (Christiana).

1. *Dementia Praecox*.—Stransky believes that some of Kraepelin's pupils have included too much under dementia praecox; and that the katatonic symptoms, catalepsy, bizzarism, stereotypy, verbigeration, etc., are much less pathognomic of dementia praecox than reflex pupillary paralysis and speech disturbance are of paresis. Cases of dementia which show transient katatonic signs and some cases of severe hallucinatory confusion with signs of dementia must not be placed in the class with dementia praecox. The criterion of dementia praecox is emotional obtundity. Stransky proposes the term "thymopsyche" for the emotional sphere and "noopsyche" for the intellectual, of which the former then being particularly impaired in dementia praecox and wanting its normal coördination with the latter, an "intrapsychic ataxia" arises; and this is the essence of dementia praecox!

2. *Hyoscine Delirium*.—Van Vleuten thinks this is the first case of

pronounced mental disturbance clearly attributable to hyoscine. His patient was an epileptic, alcoholic, hereditary degenerate who had taken hydrobromate of scopolamine for 9 months, using a solution containing 1/100 gr. to 10 minims, at first half a syringe of this, latterly increasing to two syringes a day. He always took alcohol at the same time, but never more than half a liter of pure beer. He began to sleep poorly, had bad dreams; then hallucinations of sight, hearing, taste, smell and general sensibility, and the delusion of marital infidelity. There were tremors of the hand and paresthesias. The second day he showed confusion as to time and place. In four or five days these symptoms were diminishing and in three weeks he went home. His memory for the period of delirium was perfect. Van Vleuten thinks this delirium was due to the hyoscine.

3. On "*Perseveration*" of Cortical Processes.—In Kraepelin's "Psychiatry" the word "Anregung" frequently recurs. It means, according to Vogt, what G. E. Müller and A. Pilzecker have called the persisting tendency (perseveration) of ideas. The latter investigators made a thorough study of memory and established the following laws:—

(1) After a mental impression the brain-processes set up to receive it, persist for a short time; (2) these persistent processes contribute to the fixing (in memory) of things learned; (3) these processes cease, however, if the mind begins to elaborate the impression. Vogt draws a practical conclusion from this: that school-recesses do good by permitting this "perseveration" of mental processes to fasten things in memory. He says some of Kraepelin's studies with the ergograph bear upon this process.

(Vol. 27, 1904, February.)

1. Contributions to the Knowledge of Iris-movements. DR. BUMKE.

2. On Raynaud's Disease. DR. DIEHL.

1. *The Movements of the Iris*.—This, the fifth of Bumke's series, deals with the "orbicularis phenomenon," described in 1899 by Westphal and by Piltz almost simultaneously. It occurs not merely on closing the lids, but, as Piltz showed later, when an effort to close them is made but restrained by the examiner, and is especially striking in blind eyes and in pupils that do not respond to light, since in normal eyes the light reflex tends to obscure it. This reflex was well-known to Albrecht Von Graefe, who recommended it for a therapeutic exercise in mydriasis. Bumke thinks excitation of the fifth nerve is at least an accompaniment of the lid-closing and the importance of this factor cannot be determined; but trigeminus-irritation when the lids are not closed, causes mydriasis. Cocainization does not affect the lid-closing reflex. Westphal and Piltz regarded this reflex as an associated movement of the oculomotor nerve with the facial. It at any rate has no diagnostic value.

2. *Raynaud's Disease*.—Notes of two cases.

WM. PICKETT (Philadelphia).

#### REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(1903, No. 10, October.)

1. Lesions of the cord and of the spinal nerve in General Paralysis. KLIPPEL.

1. *General Paresis*.—The author defines paresis as "a clinical syndrome common to diverse toxines, producing lesions sometimes inflammatory, sometimes degenerative, but always characterized by their diffusion, by their progressive tendency, and by their action under certain conditions aside from which the same toxines produce other syndromes," and divides this affection into three groups: (1) The inflammatory form, of recognized infectious origin, characterized histologically by diapedesis. This is the common form. (2) Forms associated with other lesions.

These are the cases of inflammatory encephalitis engrafted under the effects of a secondary infection upon previous lesions, such as chronic alcoholism, tumors, etc. (3) Degenerative forms characterized by diffuse alterations of the vessels, as in atheroma, etc. The lesions which produce the clinical syndrome of general paralysis may affect not only the brain, but the cord, the great sympathetic and even the peripheral nerves. The affections of the cord may simulate any of the system diseases and the author concludes may originate in the cord itself or occur as the result of primary involvement of the brain. As to the relation of tabes and general paresis the author thinks that the conclusion of the identity is not warranted by the mere fact that in both diseases the same regions of the cord may be involved and says moreover that the same patient may present symptoms of both diseases.

(1903, No. 11. November.

1. Convalescence from Mental Disorders. A. MARIE.

2. Histological Technique of the Nervous System. L. MARCHAND.

1. *Convalescence*.—This article is largely of local interest in its dealings with legal questions. The author among other things speaks for psychopathic hospitals with voluntary commitment, the open door system for convalescents, and continued surveillance of patients after discharge or parole either to their own or other families.

2. *Histology of Nervous System*.—A purely technical article describing the various histological methods: the Nissl, Weigert-Pal, Marchi, Exner, Weigert for neuroglia, Golgi, and Van Gieson.

WM. A. WHITE (Washington, D. C.)



## News and Notes

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APPOINTMENT FOR DR. W. B. PRITCHARD.—At the May meeting of the medical staff of City Hospital, New York, Dr. W. B. Pritchard was chosen visiting neurologist, and has since received his appointment from the Commissioner of Charities.

DINNER TO DR. SHERRINGTON.—Professor R. H. Chittenden, of Yale University recently gave a dinner to Dr. C. S. Sherrington in Boston. Twenty men, mostly physiologists, were present, and several speeches were in order. Dr. Sherrington delivered the Silliman lectures at Yale during April and a part of May.

IOWA HOSPITAL FOR INEBRIATES.—The Senate of the State of Iowa has voted an appropriation of \$125,000 for a State Hospital for Inebriates, to be located at Knoxville. The former industrial home for the blind now out of use will be utilized, and new buildings erected. Treatment of any individual case shall not exceed three years, at the expiration of which time the patient is discharged.

REPORT OF BOSTON INSANE HOSPITAL.—The trustees in this report show a decided increase in running expenses. Formerly the annual expenditure was \$625,000, now it amounts to \$737,200. The cause is due, it is stated, to the fact that the State of Massachusetts is caring for all of its insane, and is paying the city of Boston alone \$3.25 per week for 600 patients in the Boston Insane Hospital. The increase in taxes will help out, somewhat, however, amounting now to \$1,870,000, of which Boston pays 36 per cent.

AMERICAN NEUROLOGICAL ASSOCIATION.—The Council has decided to hold the thirtieth annual meeting in St. Louis, on Thursday, Friday and Saturday, September 15th, 16th, 17th, 1904. There will be one session daily, from 9 A.M. to 1 P.M. The sessions will be held in a building situated within the Exposition Grounds. A subsequent circular will be sent to you giving information in regard to transportation, hotels and other data which may be of service to you in attending the meeting. Members must send titles and abstracts of their papers to the Secretary by August 4th, 1904. Titles unaccompanied by abstracts will not be printed in the program. The annual dinner will be held on Friday evening, September 16th.

Prof. C. Wernicke has been called as Director of the Psychiatric Clinic at Halle.

Dr. Alexander Lasoursky has been made privat docent of neurology and psychiatry in the Military Academy of Medicine in St. Petersburg.

Dr. P. Yanichevsky has been appointed privat docent of neurology in the Faculty of Medicine of Kiev.

Dr. P. Francesco Arullani has been chosen privat docent of neurology in the faculty of medicine of Pavia.

Dr. H. I. Marcus was made privat docent of psychiatry in the faculty of medicine of Stockholm.

THE THIRD MEETING OF THE ASSOCIATION OF ASSISTANT PHYSICIANS OF THE OHIO STATE HOSPITALS was held on April 6th and 7th, in the Pathological Laboratory of the Ohio Hospital for Epileptics at Gallipolis, Ohio.

Afternoon Session, April 6th.—President's annual address, Dr. G. T. Harding, Jr., Columbus. Subject: The Reasons for the Existence of the Association of Assistant Physicians, and Its Policy. In his address, Dr. Harding took occasion to protest strongly against a niggardly economy to the detriment of the best medical work in these institutions. Discussion

by General Roeliff Brinkerhoff and Mr. Shirer, of the Ohio Board of State Charities, guests of the association, and by Drs. W. H. Pritchard, N. H. Young, and G. T. Harding, Jr.

Dr. J. O'Brien discussed two cases of pre-senile delusional insanity observed by him at the Massillon State Hospital and at the McLean Hospital.

Dr. Ralph W. Holmes, Gallipolis, presented the specimens from a case of epilepsy following scarlet fever, in which the accessory sinuses on the left side were found at autopsy enormously enlarged and the left half of the cerebrum destroyed in large part. Here the aphasia following the disease gradually subsided and speech was regained while the patient became left-handed.

Dr. E. B. Morrison, Gallipolis, exhibited an epileptic patient with facial hemiatrophy.

Dr. Wm. H. Pritchard, Gallipolis, gave the clinical history and presented the pathological specimens from a case of paradoxical embolism due to a persistent foramen ovale.

Dr. Walter H. Buhlig, Gallipolis, presented an epileptic with astasia-abasia.

Dr. Arthur G. Helmick, Gallipolis, read the clinical history and showed the specimens from an epileptic who died from measles and laryngeal diphtheria.

Paper, "The Surgical Treatment of the Insane," by Dr. George R. Love, Toledo, read by title.

Dr. Paul W. Tappan, Dayton, read a paper entitled, "Entertainment and Amusement for the Insane." Discussion by Drs. N. H. Young, R. W. Holmes, E. E. Gaver, G. T. Harding, Jr., and Tappan.

Evening Session, April 6th.—Dr. Earl E. Gaver, Columbus, read a paper entitled, "Changes Needed in the Ohio Lunacy Laws." Discussion by R. W. Holmes, Mr. Shirer, Drs. Morrison, Young, and Gaver.

Dr. F. D. Ferneau, Toledo, read a paper with the subject, "Tuberculosis in the Insane." Inasmuch as this is a question now being debated by the medical profession and the legislative bodies of Ohio, and as it concerns directly the treatment of the tuberculous patients in the various State Hospitals, it was freely and intelligently discussed by the members of the association. Following are those who took part in it: Drs. Gaver, Harding, Ohlmacher, Pritchard, and Ferneau.

Morning Session, April 7th—Dr. Edson C. Brown, Massillon, read a paper entitled, "Paranoia." Discussion by Drs. Tappan, Bradley, and Brown.

Dr. A. P. Ohlmacher, Gallipolis, presented and discussed the pathological specimens in "A Case of Aquatic Sudden Death of Status Lymphatics in an Epileptic."

Following the completion of the program, the business of the association was transacted. After reports of committees had been heard, the association proceeded to the election of officers, which resulted as follows: President, Dr. Wm. H. Pritchard, Gallipolis; Vice-President, Dr. Paul W. Tappan, Dayton; Secretary, Dr. Walter H. Buhlig, Gallipolis; Treasurer, Dr. F. D. Ferneau, Toledo.

As a result of the discussion of Dr. Gaver's paper on needed reforms in Ohio's Lunacy Laws, the legislative committee was charged with making a study of these laws in order to bring up for consideration at a future meeting such changes as seemed needed.

Dr. Ralph W. Holmes, Gallipolis, Dr. James F. Kelley, Cleveland, and Dr. Mylo Wilson, Athens, were appointed by the President to represent the interests of the association at the meeting of the Ohio State Medical Association, to be held at Cleveland.

WALTER H. BUHLIG, Secretary.

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**Original Articles**

MULTIPLE SCLEROSIS, WITH A REPORT OF TWO ADDITIONAL CASES, WITH NECROPSY.<sup>1</sup>

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AND

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(Phoebe A. Hearst Foundation.)

From the Philadelphia General Hospital and Polyclinic Hospital.

Multiple sclerosis has been attracting much attention recently on account of the statements made regarding its infrequency in America. The views held regarding this subject are well presented in a paper by E. W. Taylor and J. W. Myer<sup>2</sup> published in 1903, and statistics are given by them. In contrast with these statements we find that L. Bruns<sup>3</sup> says that during a period of twelve years he had made the diagnosis of multiple sclerosis 70 times in 5,500 cases of nervous disease,

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<sup>1</sup>Read before the Philadelphia Neurological Society, Dec. 22, 1903.

<sup>2</sup>Taylor and Myer. Boston Medical and Surgical Journal, April 9, 1903.

<sup>3</sup>Bruns and Stölting. Monatsschrift für Psychiatrie und Neurologie, Feb. and March, 1900.



or in 11-3 per cent. Twenty-one of these patients (30 per cent.) had symptoms of optic nerve disease. The diagnosis of multiple sclerosis was positive in only 38 of the 70 cases, and the 20 cases (above he speaks of 21 cases) with optic nerve affection were included in these 38 cases, making 58 per cent. Redlich,<sup>4</sup> in a paper published in 1903, remarks that multiple sclerosis is one of the most frequent diseases of the central nervous system.

Two cases of multiple sclerosis with necropsy were reported by one of us (Spiller<sup>5</sup>) in January, 1903, and two additional cases with necropsy have occurred in his services at the Polyclinic Hospital and the Philadelphia Hospital, and are reported in the present paper. These make six cases with necropsy reported in detail in America. The other two were reported by Burr and McCarthy<sup>6</sup> and by Hunt.<sup>7</sup> The frequency of multiple sclerosis in Europe is well known, and in 1898 attention was called by one of us (Spiller<sup>8</sup>) to the rarity of the diagnosis in America. At that time little or nothing had been said concerning this subject further than the remark in the edition of Dana's text-book published in 1892 and omitted in later editions.

The two additional cases with necropsy which we now report are as follows:

CASE 1.—Miss M. C., twenty-eight years of age, a dress-maker by occupation, was referred to the Polyclinic Hospital, clinic of Dr. Spiller, August 19, 1903. The notes of the first examination made by Dr. Weisenburg are as follows:

Her father died from "consumption of the bowel." Her mother has rheumatism and is hysterical.

Miss C. began to menstruate when she was twelve years old, and has been very irregular. She began sewing when she was sixteen years of age. She has always been sickly and very nervous. Last September she noticed stiffness in her lower limbs when she got up in the morning, and she had

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<sup>4</sup>Redlich. *Die Deutsche Klinik*, 1903.

<sup>5</sup>Spiller. *American Journal of the Med. Sciences*, Jan., 1903.

<sup>6</sup>Burr and McCarthy. *JOURNAL OF NERVOUS AND MENTAL DISEASE*, 1900.

<sup>7</sup>Hunt. *American Journal of the Medical Sciences*, Dec., 1903.

<sup>8</sup>Spiller. *The Philadelphia Polyclinic*, 1898, p. 147.

difficulty in moving her lower limbs. She had also a numb sensation in these limbs and could not feel a pin prick at all. She never has had pain, although she has a sensation as of a tight band about the lower limbs. The sensation of stiffness has partially disappeared, but when she grows excited the paresthesia is increased. When she gets up in the morning she feels as though she were walking on rubber. She was confined to her bed for seven months. About last Christmas she noticed that she could not hold her urine so well as previously. She is obstinately constipated. Her memory is somewhat impaired, and the vision of the right eye seems diminished. The upper limbs have not been stiff. She says that at times she drags her left lower limb and may fall while walking.

She walks well with her eyes open, but is ataxic, although she does not fall, when her eyes are closed. She staggers when standing with eyes closed. The patellar reflex is exaggerated on each side, but more so on the left, and patellar clonus is obtained on the left side. Ankle clonus is not present. Babinski's sign is obtained on each side. The upper limbs are not affected. She has inframammary and inguinal tenderness.

The pupils are equal and the irides respond to light and in accommodation and convergence. The tongue is normal. The fifth and seventh nerves are not affected.

Miss C. was admitted to the Polyclinic Hospital September 9, 1903, and was seen by one of us (Dr. Spiller), and the notes then made are as follows:

The patient shows no muscular atrophy. The lower limbs are not spastic. The patellar reflex is a little exaggerated on each side, and there is a tendency to patellar clonus on each side, but no true patellar clonus. The Achilles jerk is normal on each side; Babinski's reflex is present on each side, the big toe being moved distinctly upward. Tactile sensation is preserved all over the body, but the patient says she feels a touch more distinctly in the upper limbs than in the lower. Pain sensation seems to be normal everywhere. She has some inguinal tenderness on the left side. The grasp of the hands is normal. Resistance to passive movement in the upper limbs is normal. The biceps tendon, triceps tendon and wrist reflexes are normal on each side. The pupils are equal, or possibly the right is a little smaller than the left. The reaction of the iris to light and in accommodation is normal. The tongue is protruded straight and shows no tremor and no atrophy. The facial muscles are not implicated on either side. Constipation is obstinate. Speech is not affected. Nys-

tagmus was not observed in this or in any examination. Speech was not peculiar. A diagnosis of diffuse lesions in the posterior and lateral columns was made.

On September 16 a note was recorded that the patient was delirious and talked irrationally, and had had involuntary micturition while asleep. The patient was found excited and anxious about her condition, and probably worried by something that had occurred in her past history, but she was rational.

On September 18 she was sitting quietly in the ward. She got up suddenly and jumped out of a third story window. She was not unconscious as a result of this fall, and her head did not appear to be injured. Both bones of the right forearm were broken at the lower third and a compound comminuted fracture of the left wrist was found. The back of the trunk was badly contused over the buttocks as high as the lower thoracic vertebræ, and a depression over the spinal column was found at the lumbo-thoracic junction. The lower limbs were paralyzed.

On September 19 the following notes were made: The patient talks freely and it is evident that she is worried by some private affair. The bowels and bladder are paralyzed. She has complete paralysis of the lower limbs and cannot even move the toes. The patellar reflex is lost on each side. There is no ankle clonus and Babinski's sign is not obtained. The level at which sensation for touch is preserved can not be accurately determined because of the patient's inability to fix her attention on the examination. A pin prick is not felt at all in the left lower limb, and very imperfectly in the right lower limb; but is felt over the whole of the abdomen. The head and upper limbs except where the fracture has occurred, are not affected.

An X-ray examination made September 22 seemed to show an injury of the second and third lumbar vertebræ.

The patient had fever about  $101^{\circ}$ , varying from  $1\frac{1}{2}$  to  $2^{\circ}$  daily, pulse 116 to 132, respiration 24 to 28. She became gradually weaker and died October 3.

The necropsy was made by Dr. Randolph. His notes abbreviated are as follows: Extravasation of blood is found over the lower anterior surface of the sternum, and especially over the anterior surface of the spinal column. A subdural hemorrhage is present over both occipital lobes, but the skull is not fractured. The first lumbar vertebra is fractured, and the body of this vertebra is displaced backward. At the seat of fracture the spinal cord is softened and disorganized, but above this level the cord appears to be normal.

The microscopical examination gives the following results:



The spinal cord below the third lumbar segment is softened as a result of the fracture of the first lumbar vertebra. Sections from the lower part of the second lumbar segment or upper part of the third lumbar segment show several areas of sclerosis, and the area of the left crossed pyramidal tract contains fewer nerve fibers than in normal sections, and presents the appearance of secondary degeneration. Symmetrical areas of sclerosis are found in the anterior and posterior columns. In sections stained by hemalum and acid

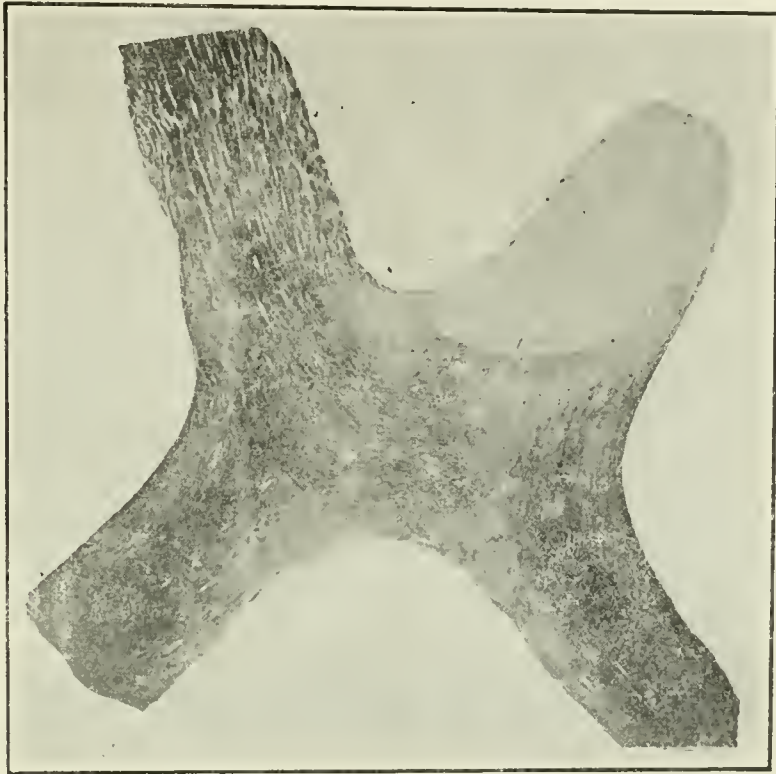


Fig. 1. Photograph of the optic chiasm and optic nerves from Case 1, showing the right optic nerve sclerotic as high as the chiasm and sharply defined from the normal tissue of the chiasm. The left optic nerve is well stained.

fuch sine a slight round cell infiltration is seen about some of the vessels in the spinal cord and in some parts of the pia. The nerve cells of the anterior horns stained by the acid fuch sine are much degenerated. They are swollen and their nuclei are eccentric. This alteration is probably the result of the fracture. The Nissl method could not be employed. Sections from about the same level stained by the Marchi method show much recent degeneration widely distributed. Numerous bundles of degenerated fibers coming from the posterior

roots are seen entering the left posterior horn. Similar bundles are not found in the right posterior horn, because at this level the right posterior horn was implicated in a sclerotic area and the medullary sheaths of many of the nerve fibers coming from the posterior roots have disappeared.

At the tenth thoracic segment the areas of sclerosis are numerous. Marchi sections from this level show much recent degeneration in the sclerotic areas, as well as some degeneration that is secondary and resulting from the fracture of the spinal column.

The areas of sclerosis are even more numerous at the eighth thoracic segment than at the tenth thoracic segment. At the seventh thoracic segment the areas of sclerosis in the anterior columns are symmetrical.

Throughout the thoracic region some round cell infiltration is found about the blood vessels of the cord, but it is impossible to determine any direct connection between this infiltration and the sclerotic areas.

Sclerotic areas are found in the lower cervical region. The nerve cells of the anterior horns at this level are not much altered. The upper part of the cervical region was not obtained at the necropsy.

Sclerotic areas are not seen in the medulla oblongata or pons.

The right optic nerve is almost completely degenerated as far as the commissure, where the degenerated area is sharply marked off from the normal area. The left optic nerve is not degenerated.

Case 2.—P. B., a male, aged twenty-four years, came to the Polyclinic Hospital May 19, 1898, to the service of one of us (Dr. Spiller). He had been a collector, and in this occupation had walked much and been much exposed to wet and cold; later he had worked in a machine shop.

The family history is unimportant. The patient denies venereal disease but says he had masturbated freely. He has been losing power in his lower limbs for the past nine months, but has no loss of power in the upper limbs, and no pain anywhere, no headache and no involuntary seminal emissions. About five months previously he had difficulty in holding his urine, but only during a period of about two weeks. He has been constipated during the past two months. He has no girdle sensation. Sight has been poor during the past year. Six or seven months previously he frequently stubbed his toes in walking.

His gait is very ataxic. Romberg's sign is present. The

patellar reflex is much exaggerated on each side, but ankle clonus is not obtained on either side. Achilles jerk is very prompt on each side. Sensation is normal everywhere. The upper limbs are distinctly ataxic. The irides react promptly to light and in accommodation, and the voluntary movements of the eyeballs is good. Slight nystagmus is present when the patient looks to the right and upward. Contraction of both visual fields is present, and is most marked in the temporal side. There are no gross changes in the eyegrounds.

The patient was lost sight of after he had been coming to the clinic for a long time, but in the early part of 1901 he was admitted to the Philadelphia Hospital and soon came into the service of Dr. Spiller. He had been confined to his bed about a year on account of weakness of the lower limbs. Atrophy had not developed.

Notes made April 9, 1901, are as follows: The patient is unable to walk at all. He can stand a few minutes with support, but his legs soon give away. Both upper and lower limbs are incoördinate, and the left lower limb more so than the right. The reaction of the iris to light and in accommodation is slow. Nystagmus is present. The extraocular muscles are not affected. Beginning optic atrophy is found in each eye. The facial muscles are not implicated, and the tongue is protruded straight.

September 10, 1901.—The lower limbs are somewhat emaciated, but not excessively so. No contractures are observed anywhere. The lower limbs are spastic, and the spasticity is increased by passive movements. The patellar reflexes and the Achilles tendon reflexes are exaggerated, and ankle clonus is obtained. Sensation for touch and temperature is diminished in the lower limbs, but for pin prick is normal. Babinski's sign is present on each side. Both lower limbs are paralyzed, but the toes can be moved slightly. He is unable to raise himself in bed, and turns his body over with great difficulty. The voluntary movements of the upper limbs are good. Speech is weak and slow, but not scanning and not explosive.

July 31, 1903.—There is slight ptosis of each upper eyelid. Nystagmus is present when the patient looks directly in front of him. Speech is somewhat explosive but not scanning. The upper limbs are weak. The man is emaciated. Intention tremor is present and more marked in the left upper limb than in the right. Tactile sensation is lost in the portion of the body between the knees and a line two inches below the nipples, but sensation for pin prick is preserved everywhere. He has no incontinence of urine and feces.



An examination of the eyes made about this time showed that the temporal side of the disc in each eye was abnormally white, suggesting incipient atrophy.

The man died August 10, 1903, from phthisis and chronic nephritis.

A microscopical study of the spinal cord and brain from this case gives the following results:

The areas of sclerosis are very extensive throughout the spinal cord and medulla oblongata.

Sclerotic areas are found in the sacral region, and those in the posterior columns on both sides of the cord are symmetrical.

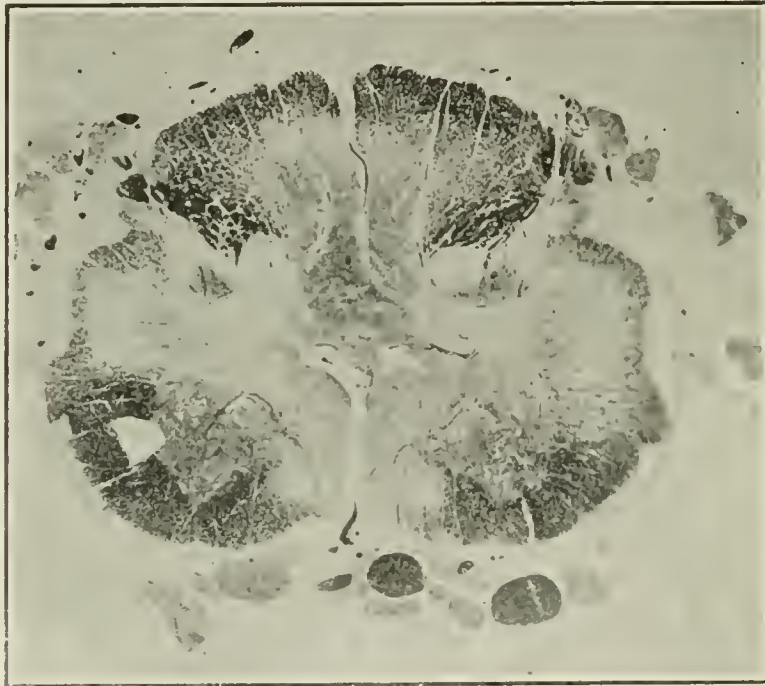


Fig. 2. Photograph of a section of the lumbar cord from Case 2, showing remarkable symmetry of the sclerotic areas in the anterior, lateral and posterior columns.

In the mid lumbar region the areas of sclerosis are remarkably symmetrical in the anterior, lateral and posterior columns. The areas in the lower, middle and upper thoracic regions are symmetrical.

The sclerosis in this case is somewhat different from that in many cases of multiple sclerosis, in that many of the degenerated areas are not sharply defined from the normal tissue, but shade off into it.

In the middle of the cervical swelling the sclerotic areas on the two sides of the cord are still nearly symmetrical.

Sclerotic areas are numerous in the medulla oblongata, and they are found also in the pons, cerebral peduncles, cerebral cortex and optic chiasm. Both the right and left optic nerves are almost completely degenerated except in certain parts of the periphery of each nerve.

The Marchi stain shows recent degeneration along the edges of some of the sclerotic areas. Perivascular round-cell infiltration in moderate intensity is found in the pia and within the spinal cord, but is pronounced in the pia of the optic chiasm and within the chiasm.

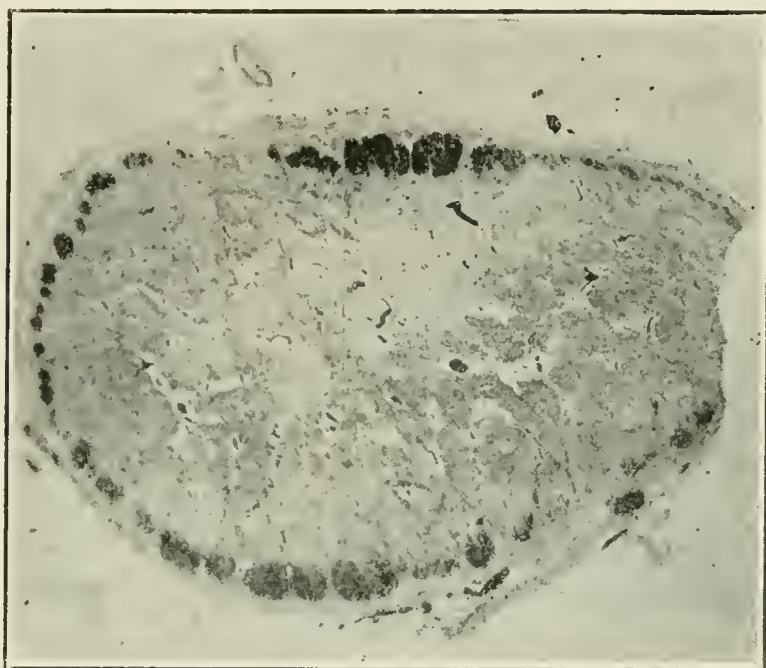


Fig. 3. Photograph of one of the optic nerves in Case 2, showing a sclerotic area implicating the transverse section of the nerve except at the periphery.

The nerve cells of the anterior horns in the lumbar and cervical regions stain well by the Nissl method. A brief abstract of each case is as follows:

Case 1.—The patient, a woman twenty-eight years old, had always been sickly and nervous. She noticed stiffness and weakness of the lower limbs in September, 1902. She complained of paresthesia in these limbs and had some disturbance of objective sensation. About Christmas, of 1902, she had difficulty

in holding the urine. Vision of the right eye appeared to be diminished. The gait was not striking when the eyes were open, but was ataxic when the eyes were closed. The patellar reflex was a little exaggerated on each side. Babinski's sign was present on each side. The upper limbs and head were not affected. Speech was not peculiar and nystagmus was not observed. The woman while in the hospital jumped from a third story window and died after an injury received from the fall. She had a fracture of the first lumbar vertebra. Areas of sclerosis were found throughout the spinal cord, and the right optic nerve appeared almost completely degenerated.

Case 2.—This patient first came under the observation of one of us (Dr. Spiller) in 1898, and had been under his care much of the time since until the patient's death. In 1898 the man was twenty-four years old. He had been exposed to wet and cold. The notes made in 1898 state that he had been losing power in his lower limbs for nine months, but had no loss of power in the upper limbs and no pain anywhere. He had had difficulty in holding the urine during a period of about two weeks. Sight was poor. Gait was ataxic. Romberg's sign was present. The patellar reflex was much exaggerated. Sensation was normal everywhere. The upper limbs were ataxic. Slight nystagmus was present.

In 1901 he was unable to walk at all. Beginning optic atrophy was found in each eye. Speech was slow but not scanning.

In July, 1903, intention tremor was observed in the upper limbs. He had incontinence of urine and feces. Tactile sensation was much impaired in the lower limbs and trunk. The temporal side of the disc in each eye was abnormally white, suggesting incipient atrophy.

Sclerotic areas were found throughout the cord, medulla oblongata, pons, cerebral peduncles, and in the white matter and cortex of the cerebrum. The areas in the spinal cord were remarkably symmetrical.

Flatau and Koelichen<sup>9</sup> say that the number of published

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<sup>9</sup>Flatau and Koelichen. *Deutsche Zeitschrift für Nervenheilkunde*, Vol. 22, Nos. 3 and 4, p. 250.



cases in which multiple sclerosis caused the clinical appearance of transverse myelitis is not great. They refer to the cases of Pitres, Siemerling, and Nonne, and report a case in which the symptoms were flaccid paralysis of the lower limbs, incontinence of urine and feces, and decubitus; sensation was not disturbed. The upper limbs and cranial nerves were not implicated, and the patient did not have intention tremor, nystagmus, scanning speech or mental symptoms. An ophthalmoscopic examination was not made.

The first case that we report in this paper was suggestive of transverse myelitis, but it was supposed to be a case in which diffuse lesions were present in the lateral and posterior columns, and certain facts in the history suggested syphilis. The fall from a third story window during the time the case was being carefully studied caused symptoms that masked those originally present. An examination of the eyegrounds would probably have shown alteration of the right optic disc, and this examination would doubtless have been made if the accident referred to had not occurred soon after the patient entered the hospital.

The frequent implication of the optic nerves in multiple sclerosis was known to Charcot some thirty years ago. It has been mentioned repeatedly by Oppenheim, and more recently the subject has received attention from Bruns and Stölting and others. A person with sclerotic patches in the optic nerve may have little or no disturbance of vision, and the ophthalmoscopic examination may reveal an unsuspected condition, especially as the disease of the optic nerve may be among the first or even the first sign of the multiple sclerosis. Sclerotic patches may occur in any part of the visual tracts as far back as the cortex of the occipital lobe. According to Bruns and Stölting the chiasm is frequently the seat of sclerotic areas. The ophthalmoscopic change consists often of pallor of the temporal side of the disc; optic neuritis or optic atrophy also may be found.

In both the cases reported in this paper optic nerve degeneration was pronounced, and it was present also in the other two cases reported by one of us (Spiller), and also in the case of Burr and McCarthy. An examination of the eye-

grounds is therefore of great importance in every case presenting symptoms that could be attributed to multiple sclerosis, because the disturbance of vision, as in both the cases reported in this paper may be slight as compared with the alteration of the optic nerves.

Bruns and Stölting<sup>10</sup> confirm the observations of Oppenheim regarding disturbances of the bladder and of sensation, at least in the later stages of the disease. Vesical symptoms and sensory disturbances were present in both of our cases.

The degeneration of the posterior root fibers of the mid lumbar segment on the left side in the first case was caused by the fracture of the first lumbar vertebrae and injury to the spinal roots. The degeneration of the medullary sheaths by the Marchi method was very distinct, and the degenerated fibers could be seen entering the posterior horn of the left side in large numbers. As the posterior roots within the cord on the right side at the same level were implicated in a sclerotic area, and the medullary substance of these fibers had disappeared, no degeneration of these roots by the Marchi method could be detected. This observation shows that the patellar reflex may be exaggerated, even though the medullary sheaths about the fibers concerned in the reflex have disappeared. It has been known that the function of nerve fibers within the spinal cord may be preserved after the medullary sheaths of these fibers have disappeared, and our case shows that the same is true of the fibers concerned in the tendon reflexes.

Flatau and Koelichen discuss the pathological findings of multiple sclerosis, whether they are inflammatory or not, and they make the statement that most of the recent investigators favor the inflammatory theory. They refer to Ribbert, Cramer, Bikeles, Goldscheider, Balint, and others. Redlich, however, does not accept the inflammatory theory. Flatau and Koelichen, from a study of their case of multiple sclerosis and from their investigations of the literature, conclude that multiple sclerosis should be classed with disseminated myelitis. Strümpell, in a note at the end of their paper, makes the criticism that it would be better to regard their case as one of

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<sup>10</sup> Bruns and Stölting. *Monatsschrift für Psychiatrie und Neurologie*, Feb. and March, 1900.

acute disseminated myelitis, instead of multiple sclerosis, and he insists on making a sharp distinction between the two diseases.

It is exceedingly difficult to determine the relation of multiple sclerosis to multiple myelitis. In the latter disease we do not find usually the areas of sclerosis sharply defined, at least to the naked eye, from the surrounding normal tissue. In our second case many areas of sclerosis shade off into the normal tissue, and at some places perivascular cellular infiltration is found, and yet this is unquestionably a typical case of multiple sclerosis. In our first case the perivascular cellular infiltration is distinct at certain places but it is impossible to establish a close relation between these and the sclerotic areas. This should be a suitable case for this purpose, as death occurred less than a year after the first definite symptoms of multiple sclerosis were manifest, and from a cause independent of this disease.

Redlich has called attention to the symmetry sometimes found in the areas of the two sides of the cord in multiple sclerosis. The symmetry throughout the spinal cord in our second case is extraordinary, and suggests a vascular origin or a defect in the development of the cord. We have never seen in any case of multiple sclerosis such symmetry extending throughout the cord, and yet we have at our command sections from many cases of multiple sclerosis. Fig. 3 shows the symmetrical areas on the two sides of the cord in the lumbar region.



# MULTIPLE SCLEROSIS: ITS OCCURRENCE AND ETIOLOGY.\*<sup>1</sup>

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The neurological clinic of Dr. M. Allen Starr was opened in May, 1888. From that time to January 1, 1904, 16 years, there have been received 31,502 patients suffering from some form of nervous or mental trouble. As shown in a report of the clinic for 1903,<sup>2</sup> the percentage of nervous and mental diseases to the entire clinic population—666,226—over these years varied from four to five per cent., in 1890 being as low as 3.6; in 1896 as high as 5.2 per cent. The details showing as follows:

YEAR.	DISEASES OF TOTAL CLINIC.	ALL DISEASES SCLEROSIS.	PROPORTION.
1888 (7 mos.)	732	13,330	5.5%
1889	1,273	29,723	4.3
1890	1,466	34,690	3.6
1891	1,677	35,715	4.7
1892	1,586	35,657	4.4
1893	1,897	39,569	4.8
1894	2,165	41,871	5.1
1895	2,402	46,444	5.1
1896	2,948	54,667	5.2
1897	2,567	51,413	4.9
1898	2,153	48,566	4.5
1899	2,052	48,742	4.2
1900	2,125	48,967	4.3
1901	2,223	47,156	4.7
1902	2,205	45,338	4.8
1903	2,006	44,378	4.5
16 years	31,502	666,226	4.7

## INCIDENCE.

During this time there have been recorded in the history books by one or another of the clinical assistants histories of

\*This paper is based upon the material of the clinic of Dr. M. Allen Starr, at the Vanderbilt Clinic, to whom I am indebted for the privilege of making these studies. The work was begun with Dr. A. B. Bonar, with whom an exhaustive analysis of 61 cases was prepared. The extra patients have come to the clinic since 1899.

<sup>1</sup>Read before the New York Neurological Society, June, 1904.

<sup>2</sup>"Dispensary Work in Nervous and Mental Diseases," 1903. By Smith Ely Jelliffe, JOURNAL OF NERVOUS AND MENTAL DISEASE, Vol. 31, May, 1904, page 309.

109 patients who have been thought to have the symptom-complex held to be diagnostic of multiple sclerosis. Of this number 60 positive cases have been seen by the writer, or by Dr. A. B. Bonar, with whom the present study was begun. It was at first thought possible to trace all the patients and verify or correct the diagnoses, but this was found so annoying and time-consuming by reason of the very migratory propensities of our clinic population (one patient having moved nine times in one year), that after six months of such endeavor it was abandoned.

It has therefore been believed in the present statistical inquiry that the observer who made the records had good and sufficient reasons for making his diagnosis, and save in some instances, in which the recorded data are grossly inadequate, it has been assumed that the diagnosis is as good as other diagnoses made under similar conditions in other clinics, and therefore fit for purposes of comparison. When it is further borne in mind that the multiple sclerosis syndrome is not always clearly cut as a clinical entity the present course seems justifiable. At the same time a certain justification seems necessary in view of the different interpretation placed upon the diagnosis of this condition. It may be stated, however, that no diagnosis of multiple sclerosis was made without the presence of at least three of the four cardinal symptoms, increased reflexes, intention tremor, nystagmus and scanning speech.

If it is assumed that these 109 patients had this disease—or had the symptoms—apart from the pathological limitations hedging about a certain central type of disease,—the incidence of this disease in this clinic to all other neurological cases is .0034 per cent. or about 1 in 300. A comparison of these figures with those recently given in this Society in a discussion on multiple sclerosis, February 4, 1902,<sup>3</sup> may not be without interest. In this impromptu discussion Dana reported ten in three thousand in private practice, and in the twelve thousand general cases at Bellevue one sees only one or two each year. No details over an extended number of years were

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<sup>3</sup>JOURNAL OF NERVOUS AND MENTAL DISEASE, Vol. 29, 1902, pp. 284-290

given, however. In 10,000 cases Dr. Hammond reported as follows: In three thousand private cases he had observed fifteen cases of multiple sclerosis, or  $\frac{1}{2}$  of one per cent. (not two per cent. as reported in the JOURNAL.) In 2,400 clinic cases 32 were found, or .008 per cent. In the combined 10,000 cases, 47 had multiple sclerosis, or about .005, one-half of one per cent. Dr. Goodhard reports 27 cases in 10,000 cases from Dr. Starr's clinic,—but inasmuch as Dr. Bonar and myself had up to 1899, 61 possible cases on record of which 32 had been personally examined and verified, these figures are not complete. Dr. Goodhard tells me he rejected all those cases that did not show all the so-called signs of multiple sclerosis, and further he did not go over all of the records. Dr. Sachs had found 13 cases in 2,000 of private record, or 1 in about 135. Dr. Fisher had seen in 2451 cases, eight of multiple sclerosis, or 1 in 306. Dr. Collins reported 46 cases in 9,508 patients, or about one-half of one per cent. Dr. Fraenkel reported in 1,050 cases, 18 cases of multiple sclerosis, or a proportion of 1.7 per cent. His figures are largely taken from a service that represents practically only the terminal nervous complaints, hence his proportion is higher than others who have drawn their figures from dispensary material.

Dr. Bryon Bramwell<sup>4</sup> has concluded from these figures that multiple sclerosis is much more common in England than in America, his proportion in 5,825 cases being 100, or about 1.7 per cent., one in 59. R. T. Williamson<sup>5</sup> has shown in 2,294 cases of nervous disease at the Manchester Royal Infirmary in ten years, there were 61 patients with multiple sclerosis, a proportion of 2.2 per cent. This is the highest percentage recorded in any records that have been available.

Certainly our own figures would justify Dr. Bramwell's assertion that multiple sclerosis is more common in England than in the United States, and it seems reasonably certain that we make a diagnosis of the disease on much the same lines as our English confrères. If this is true, the cause for this disparity is well worth investigating, in view of the as yet unsettled notions concerning the origin of this disease in general.

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<sup>4</sup>Review of Neurology and Psychiatry, Vol. I., 1903, page 12.

<sup>5</sup>Medical Chronicle, January, 1902.



A comparison with the figures of Jolly's Polyclinic service at Berlin as reported by Seiffer and Laehr may be used as a basis for the comparison of incidence as seen in Germany. The figures for 6 years alone are available.

1896—1897 (6 mos.)	500	6	1.2 %
1897—1898	1,052	10	.95
1898—1899	1,141	13	1.1
1899—1900	1,224	8	.69
1900—1901	1,288	14	1.1
1901—1902	1,774	8	.43
	<hr/>	<hr/>	<hr/>
	6,979	59	.84

These figures show an average of .84%, or 1 in every 118 patients affected with general nervous disorders. This is a figure double our figure and half that of Bramwell's.

Saenger's Poliklinik in Hamburg<sup>6</sup> shows the following:

YEAR.	NERVOUS CASES.	MULTIPLE SCLEROSIS.
1893	231	2
1894	319	3
1895	473	5
1896	661	7

Figures for these four years are alone available at this time, but they illustrate a higher percentage than with our clinic patients of this disease.

#### ETIOLOGY.

It is not the intention of the present study to settle the vexed question of the etiology of this affection. One of our own colleagues, Dr. Sachs,<sup>7</sup> has impressed upon us the fact that unquestionably this disease is protean in origin and that many factors may be instrumental in causing the multiple areas of sclerosis—this is undoubtedly true for clinical multiple sclerosis particularly. Whether we are yet in a position to assert that there is a multiple sclerosis of a classical type, clearly distinguished on pathological grounds from other types, but with similar clinical signs is not for me to discuss, much less decide.

With this outline of the stand taken I would present such facts as have come to our attention which may be construed as bearing in some manner on the question at hand. I am

<sup>6</sup>Jahrbücher der Hamburgischen Staatskrankenanstalten.

<sup>7</sup>Critical Digest on Mutiple Sclerosis, JOURNAL OF NERVOUS AND MENTAL DISEASE, Vol. 25, 1898, pp. 314-464.

unable at this time to present to your attention a study commensurate with the demands, as has been done by Klausner<sup>8</sup> for the Halle clinic, but some general features may not be considered uninteresting.

GENERAL FACTORS: *Sex*.—Charcot first maintained that multiple sclerosis was more frequent in women than in men, but most modern writers are unable to show any marked difference in the incidence of the disease in the two sexes. In our clinic statistics, 68 were male, 41 female. Although the percentage is not particularly marked it seems that in the reports of those observers who have reported a large number of cases that the males slightly preponderate. Thus

Nolda in 26 cases has 16 men and 10 women.

Krafft-Ebing in 100 cases has 58 men and 42 women.

Redlich in 23 cases has 12 men and 11 women.

Stieglitz in 35 cases has 17 men and 17 women—1 (child).

Sachs in 15 cases has 10 men and 5 women.

Lent in 51 cases has 37 men and 14 women.

Blumreich and Jacoby in 29 cases have 23 men and 6 women.

Moran in 8 cases has 4 men and 4 women.

Latsch in 45 cases has 30 men and 15 women.

Hoffmann in 100 cases has 53 men and 47 women.

Klausner in 126 cases has 78 men and 48 women.

Jelliffe in 109 cases has 68 men and 41 women.

Berlin is the only author in whose report women preponderate; in his 39 cases there were 13 men and 26 women. A close study of his paper does not reveal the reason.

It may then probably be taken as established that sex plays little part in the etiology of this affection. There is as Hoffmann asserts, a tendency of the disease to attack healthy men in the early prime of life, but the underlying causes are evidently those to which both sexes are equally exposed. Yet my own series, and even more, Klausner's figures show a distinct preponderance of the male sex.

*Nationality*.—In view of the cosmopolitan character of the American population, particularly in a large city such as New York, a note concerning the nationality of our patients may be of

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<sup>8</sup>Arch. f. Psych., 34, 1901, p. 841.

interest. Of the 109 patients, 47, less than one-half, were of American birth, and even among these at least 12 were of the second generation of foreign stock. The records indicate the following, United States 47, Germany 20, British Isles 19, 17 being Irish, Austria 6, Sweden and Norway 5, Russia 4, Cuba, Italy and colored each 1, unknown or untraceable 4.

*Age.*—Concerning the influence of age a large number of studies have brought about considerable modification of standpoints. It was early held that this disease was one of adult life. Later Charcot placed the lower limit at 14 years. It was soon shown, however, by Leyden and later by a large number of others, that early infancy is not exempt, and in late years some observers have come to feel that the disease is one distinctly of youth, although the adult and even the old, are not free.

In the present instance my own figures show that the youngest patient was 4 years of age, and it is not at all unlikely that of the 9 patients under the age of ten in this series, in at least three the disease began in the early days of infancy. The oldest patient was 68 years of age, the disease having been present 4 or 5 years as far as could be ascertained. Crocq has reported a case occurring in a woman of 81; certain difficulties in diagnosis, however, were present.

Tabulated the age incidence in the present series, is about as follows:

AGE.	MALES.	FEMALES.	TOTAL.
0—10	3	6	9
10—20	5	3	8
20—30	14	7	21
30—40	18	9	27
40—50	13	7	20
50—60	12	7	19
60—70	1	0	0
No age obtained			4
			<hr/> 109

Klausner's recent figures show a somewhat similar series: 0 — 10: 4; 10 — 20: 17; 20 — 30, 38; 30 — 40, 36; 40 — 50, 17; 50 — 60, 7; over 60, 2. The younger ages show a slightly higher percentage.

Hoffmann<sup>9</sup> in a recent study has said that the vast majority

<sup>9</sup>"Die multiple Sklerose des Centralnervensystems," Deutsche Zeitschrift, f. Nervenheilkunde, 21, 1902, p. 1.



of his 100 cases occurred between the ages of 18 and 35. In my own series 31 men and 15 women, or 46 in all, less than one-half, would come within these limits; 17, 8 males and 9 females were younger; 43, 27 men and 16 women, were over 35 years of age.

About 8 per cent. of the present series occurred in patients under the age of 10. This is a comparatively high percentage when Bourneville states that in 20 years at the Bicêtre he has observed only four children with multiple sclerosis. Still it is being recognized that the disease is definitely present in infancy; Stieglitz<sup>10</sup> having called attention to the condition, and Schupfer,<sup>11</sup> in the most recent analysis of this disease in infancy, finds reports of at least 59 confirmed by pathological findings. In view of the extreme difficulties of diagnosis of this condition from meningeal and diplegial conditions and from a number of the hereditary developmental diseases, Friedreich's and Marie's ataxia, and others, these figures cannot be considered to be unimpeachable.

It may be worth while to call attention to the high percentage of adults suffering from the disease in this series.

*Occupation.*—Our own statistics bear out those of practically every worker in this field that the type of occupation plays no important rôle. Hoffmann has well said that often the particular type of clientele of a hospital or clinic seems to show a certain preponderance of one type of occupation, but this is more a matter of locale than anything else. Thus in his own studies he has found a large number of farm workers among his cases, at least 37, but to conclude that work in the garden or field was a predisposing or contributory factor would be nonsense. In the same manner for a city community like New York it would be natural to suppose that a large proportion of the patients would be skilled laborers, or city workers, since such represent a high proportion of our working classes.

Our own figures show that 63 patients were distributed

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<sup>10</sup>JOURNAL OF NERVOUS AND MENTAL DISEASE, 24, 1897, p. 174. Also American Journal Medical Science, 115, 1898, p. 146.

<sup>11</sup>Monatschrift f. Neurologie u. Psychiatrie, 12, 1902, p. 60.

as follows: leather cutter, 2; machinst, 3; glazier, 1; watchman, 1; clerk, 2; tailor, 3; carpenter, 7; painter, 3; brush-maker, 1; driver, 5; servant, 2; porter, 1; insurance agent, 1; theatre manager, 1; actor, 1; electrician, 1; bartender, 1; book-keeper, 1; book-binder, 2; collector, 2; butcher, 2; tanner, 1; engineer, 1; pilot, 1; fish-dealer, 1; seamstress, 1; stable-man, 1; motorman, 1; laundress, 1; shoemaker, 2; waiter, 1; domestic, 4; laborer, 6; housewife, 7; no occupation, 13; the occupations of the remaining were unknown.

It therefore seems highly probable that the type of work in which one is engaged bears no relation to the development of the disease.

*Heredity.*—In Klausner's series, 31 patients showed the effects of some form of inheritance. This is a far higher percentage than any other author has shown. Our own series shows only 8 patients with distinct nervous inheritance. In one the father suffered from traumatic insanity, in another a sister had paralysis agitans, one had an alcoholic father, in two the mother had a tremor; in one, the mother had the same disease; in one, a sister had a marked tremor, and in one the mother had epilepsy. In 21 it is positive that there was no nervous history for two antecedent generations; for the greater number, however, no history was obtainable.

*DIRECT CAUSATION.*—Turning to a more active phase of the question, what facts, if any, can be obtained from our cases bearing on actual factors. From time to time certain factors have been assumed to be of importance in the etiology of this affection. Trauma, poisoning, acute infectious diseases, any cause lowering the power of an hereditary endowment, any abiotrophy, have each in turn been assumed to play a dominant rôle in multiple sclerosis.

Of these factors it seems probable that three at least are worth inquiring into, acute infectious disease, trauma, poisoning.

*Infectious Diseases.*—I think we are in a position at the present time to state with definiteness that acute infectious diseases are important etiological factors in this affection. We are also in the position to correct the extreme attitude that it is the only factor—a position which some writers—controversially inclined—assumed was the position taken by Marie.

There is much conclusive testimony as to the relation of infectious diseases to multiple sclerosis in a large number of recent studies. One paper in particular, it seems to me, is deserving of notice inasmuch as it seems to have been entirely overlooked by recent German and English writers. It is a study of Le Brun<sup>12</sup> which is extremely exhaustive and is worthy of special consideration in view of its philosophic mode of handling. Le Brun demonstrates from a wide survey of literature, from personal observations and pathological data that (1) the adjuvant, predisposing causes are the general and local modifications of the environment. Such create the *sur-ménage*, the emotions, exposure to cold, to traumatism, whereas (2) the acute factor is infection. He cites 120 observations in which the causal relation is thus shown.

German authors have opposed Marie's contention, particularly Krafft-Ebing and Redlich, but at the present time the position taken by Hoffmann is probably the more correct one—that infection undoubtedly plays an important rôle—its influence is undeniable, but other factors are equally important. In 5 per cent. of his cases acute infections played an unquestioned part. Hoffmann calls attention to a common sense feature in this regard, that one should not accept any infectious disease as a factor unless there is a close time relationship between the infection and the onset of multiple sclerosis. In Klausner's figures in 21 patients there was a like relationship shown—in 8 the disease beginning directly after the infection. Typhoid, malaria, rheumatism, smallpox and pneumonia have been the infections most commonly reported on, while in Le Brun's list, measles, erysipelas, diphtheria, scarlet fever, pertussis and syphilis are less frequently represented. Sachs'<sup>13</sup> statement that if infectious disease were the chief cause of multiple sclerosis the vast majority of cases should come on before the age of 15, and also Hoffmann's, loses somewhat of its force when it is remembered how wide the term infectious diseases has grown. Moreover our ignorance of what the chief children's diseases, measles, scarlet fever, really are, should be borne in mind.

Our own figures are not very convincing in regard to in-

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<sup>12</sup>Archives médicales Belges, 4, 1894, p. 575.

<sup>13</sup>JOURNAL OF NERVOUS AND MENTAL DISEASE, 1898, p. 467.



fections, for in about 50 per cent. of the cases the observer made no note of having inquired into the subject. In 14 of the remaining 55 patients there was a distinct history of antecedent infectious disease. It is striking that 5 of these patients had malaria. Syphilis was found in 2, tuberculosis in 1, acute articular rheumatism 1, erysipelas 1, influenza 1, diphtheria 1, pneumonia 1, and one unknown febrile affection.

It will be noted that syphilis is included in this series. Syphilis is considered by most of those observers who have written on the subject to play no rôle whatever. Hoffmann is positive on this point, but admits that multiple syphilitic affections may be clinically indistinguishable, while anatomically distinct. There is a tendency, however, with a number of later students not to reject syphilis entirely—and some excellent observers, Schupfer in particular, ascribe to hereditary syphilis a place in the etiology of this disease, especially in children.

*Trauma.*—Closely related to infection, if not integrally related with it, is the subject of trauma, first brought into prominence by Leuba and corroborated by Fürstner, Gerhardt, Mendel, V. Jacksch and others. In addition to the testimony of these earlier records Hoffmann gives ten per cent. of his cases as having suffered from trauma, possibly 13; Klausner gives a higher percentage, 26 in his 126 cases, while in our own series, trauma was present in 13. The study of the mutual relations of trauma and infections may bring into prominence these two factors, as associated causes. Such is the lesson of some of the recent work in bacteriology.

*Poisons.*—Closely related to infection, if not integrally related, our figures are not very convincing. Although three of our patients were painters none of them ever had symptoms of chronic lead poisoning. In view of Oppenheim's figures it is not improbable that lead poisoning may have some importance, but it must be remembered that the locale may be of importance in the determination of this particular factor. Alcoholism was present in a number of Klausner's cases, 8 in our own. Its influence is probably of very minor importance.

Concerning other factors our own statistics show anemia in 2, sexual excesses in 1, epilepsy in 1, business troubles in 1, and in 2 the history of a highly strung nervous condition is recorded.

UREMIC HEMIPLEGIA, WITH CHANGES IN THE NERVE CELLS  
OF THE BRAIN AND CORD, AND RECENT PRIMARY  
DEGENERATION OF ONE CENTRAL MOTOR TRACT.<sup>1</sup>

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Some of the effects of the disorder known as uremia upon the nervous system have been well recognized in recent years, although it is not so long ago that this was denied. Of the different manifestations of this disease none have been of more interest or have excited more study than the hemiplegia produced by the uremic condition. In spite of the large number of cases with necropsy, and of experiments upon lower animals, the cause of this disease still remains in doubt.

The usual findings at necropsy have been more or less edema of the brain substance and its membranes, and at times dilatation of the ventricles. A number of cases have been reported, however, where no edema was found. (Level, Chauffard and Lancereaux.) The edema may be symmetrical, it may be localized to the side of the brain opposite the hemiplegia (Pätsch, Charpentier), or it may be on the same side as the hemiplegia (Charpentier). A case was reported by Mann where in a right hemiplegia preceded by Jacksonian convulsions, the left ventricle was distended to about three times the size of the right ventricle.

It is hard to explain why a bilateral edema should produce a unilateral paralysis, or why the edema should produce paralysis at all. In the great number of cases of uremia which come to autopsy, in which there are no nervous symptoms, edema of the brain or membranes is a common finding.

The well known experiments of Raymond may perhaps throw some light upon the physiology of this condition. The left superior cervical ganglion was removed from a rabbit and

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<sup>1</sup>From the Philadelphia General Hospital. From the William Pepper Laboratory of Clinical Medicine, Phœbe A. Hearst Foundation.

Read before the Philadelphia Pathological Society, Dec. 17, 1904.

several days later the vessels at the hilum of the kidney were ligated, producing an artificial uremia. Convulsions occurred and were limited to the right side of the body. When the right ganglion was removed and the vessels tied, the convulsions were limited to the left side; or, the uremic disturbances showed themselves on the side governed by the cerebral hemisphere, the vessels of which had been paralyzed by the removal of the ganglion. At the necropsy, however, there was found a diffuse bilateral edema.

As a result of more recent research the theory that edema is the primary cause of uremic hemiplegia has been abandoned, and it is believed that definite organic changes in the central nervous system are the causes of this condition. Such changes, however, have not been heretofore described.

The cellular changes in the central nervous system in experimental uremia of dogs, have been studied by Acquisto and Pusateri. In the anterior horn cells of the spinal cord these investigators found loss of peripheral chromatic bodies, while the perinuclear bodies had undergone granular disintegration. In the cerebral cortex different stages of chromatolysis were noted. In some cells the peripheral chromatic bodies and the dendritic processes were normal, while in the perinuclear zones there was advanced chromatolysis. Other cells were homogeneous, and their nuclei dark and indistinct.

Sacerdotti and Ottolenghi also examined the central nervous system in dogs dying four to seven days after ligation of both ureters. By Golgi's method they demonstrated varicose atrophy of the dendrites, while the axis cylinder processes remained normal. The lesions were most marked in the cerebral cortex, where all the cells were affected, but were also abundant in the pes hippocampus. Nissl's stain failed to show the chromatolytic changes in the cortical cells described by Acquisto and Pusateri.

Donetti examined by Golgi's and Nissl's method the central nervous system of rabbits dying from uremia after bilateral nephrectomy. By Golgi's method he found varicose atrophy of dendrites with other less definite changes in the cortical and cerebellar cells. By Nissl's method there were no distinct alterations in the cortical cells. In the medulla and



the cord the nuclei of the large cells were very often eccentric, the chromatic substance was reduced in amount, the bodies were finely fragmented, and many cells contained vacuoles. He does not believe that these lesions are characteristic of uremia.

Gabbi, as a result of bilateral tying of the ureters, found in the cerebral cortex of guinea pigs and rabbits, in most of the cells a perinuclear chromatolytic process with a homogeneous condition of the nucleus. In the medulla there were examples of peripheral chromatolysis. With Golgi's method varicose atrophy of the nerve cells was found. Some of the cells in the anterior horns were deformed.

Ewing studied microscopically the nerve cells of the brain and cord of six cases of uremia. In none of his cases were there any accompanying paralysis of the upper and lower limbs of either side, except in one case where one arm was paralyzed. He came to the following conclusions: "Uremia as it occurs in the human subject is associated with rather marked changes in the chromatic substance of the nerve cells, but these changes are very irregular in character and distribution. As a rule the spinal cells are but little changed in uncomplicated cases. The lesions are most marked in the medullary nuclei, especially in the nuclei of the tenth nerve and above, as well as in the deeper cells throughout the medulla. Here nearly every variety of chromatolysis may be observed, excepting very advanced or complete bleaching of the cells, which is rare.

"The cortical cells are usually better preserved than might be expected from the very marked cerebral symptoms of fatal and prolonged uremia. In the case dying with severe convulsions the cortical as well as the medullary lesions were most marked.

"The condition of Purkinje's cells was very uniform in the cases examined, the chromatic bodies of these cells being very irregular in size and shape, and considerably deficient in number.

"The effects of the pial edema could not be distinctly traced in the cortical cells.

"No distinct or uniform nuclear changes were detected in these cases, although the nuclei were often abnormal in appearance. The achromatic substance of the cortical archy-

chromes frequently appeared greenish and opaque, suggesting an early stage of pigment degeneration.

"The most advanced cellular alteration of the series were seen in the nuc. X and deeper cells (nuc ambiguus), in the case in which severe dyspnea had been the chief complaint for five days before death.

"In general, it seems reasonable to conclude that the lesions of the nerve cells in uremia are largely referable to local influences and partly also to general toxemia. Among such local influences may be suggested, (1) altered condition in the peripheral fibers of the cells; (2) local circulatory disturbances; (3) overaction of particular groups of nerve cells; (4) and possibly also the effects of pyrexia.

"Finally, in the above cases, there was a fair parallelism between the grade of cellular change and the general severity of the symptoms."

So far as I know there are no cases of uremic hemiplegia with changes in the nerve cells and in the central motor system on record. The first case I have to report is as follows:

L. W., seventy-one years old, washerwoman, was admitted to the Philadelphia Hospital, June 6, 1903, service of Dr. C. S. Potts, from the outwards. The patient had complained of weakness for some time, and suddenly lost power of her left side. No history of her previous condition could be obtained. The following notes were made by Dr. Potts, to whom I am also greatly indebted for the post-mortem material.

"Patient is dull mentally, but can understand and does answer questions intelligently. The mouth is drawn toward the right side. She can close both eyes equally well, but there is a weakness of the occipito-frontalis and corrugator supercillii muscles on the left side. The left arm and leg are completely paralyzed. Sensation is not altered. The biceps and triceps jerks are present and equal on both sides. The knee-jerks are prompt and equal on either side. The Achilles jerks are present. No ankle clonus on either side. Both plantar reflexes are active, more so on the left side, where the great toe is slightly extended. The pupils are equal, and react sluggishly to light. There is no conjugate deviation of the eyes, and no difficulty in swallowing."

The patient gradually grew weaker and died fourteen days

after the onset of the paralysis. The temperature varied between 97° and 98° F. during her illness. The urine examination was undoubtedly made, but the record has been unfortunately lost from the history sheet.

The necropsy was performed by Dr. C. H. Bunting, who made the following notes regarding the patient's kidneys: "The kidneys are small, the capsule is thickened, leaving a granular, roughened surface when stripped. On section, the cortex is narrow, the striæ irregular and the glomeruli are injected and prominent."

The pathological diagnosis was:

Arteriosclerosis, chronic diffuse nephritis, cardiac hypertrophy and dilatation, chronic interstitial pleuritis and enterocolitis.

There was no note made of edema of the membranes of the brain or cord. The ventricles were opened and the specimens put into Orth's fluid. Horizontal sections made show no gross lesions, and a careful examination showed no small lacunæ, nor areas of softening as described by Marie.

Microscopically the changes in the nerve cells as stained by the thionin stain are as follows:

Lumbar region.—The cells here are similar to those in the cervical region. The cells of the column of Clarke are much degenerated. The chromophilic elements in many of the cells have entirely disappeared, and are replaced by a mass of fine granular yellow pigment filling up the whole cell body. In most of the cells the nuclei are at the periphery.

Cervical region.—The cells of the anterior horns are intensely pigmented, which is not remarkable considering the age of the person, which was seventy-one years. Some of the cells are probably atrophied, the nuclei are not displaced and the alteration in the cells is slight.

Paracentral lobule.—The Betz cells of the left paracentral lobule are intensely pigmented. In some of the cells the pigment fills the whole cell body, and in these cells the nucleus cannot be observed. The Betz cells of the right paracentral lobule are similar to those in the left paracentral lobule, but the alteration is more intense than in the left. In some cells chromatolysis and peripheral displacement of the nucleus without an excessive amount of pigment, are found.

Cerebellum.—Many of the cells of Purkinje are swollen, and in some the nucleus is eccentric and the chromophilic elements are more or less broken up. Pigmentation of these cells is not pronounced.

Medulla.—The cells of the nucleus ambiguus of each side are in fair condition, however here and there a much altered



cell is found. In these cells the nucleus is displaced to the periphery and the chromophilic elements are disintegrated. Nerve cells from the frontal, temporal and occipital regions do not show any distinct pathological changes.

The Weigert hematoxylin and acid fuchsine stains show no changes in the spinal cord.

In the lumbar region degeneration as shown by the Marchi method is present in the left crossed pyramidal tract. It is slight, but unmistakable. In the cervical region the degeneration in the crossed pyramidal tract of the left side is greater than that in the lumbar region. It is moderate in degree, and is such as would be found in a primary degeneration of short duration. It is, however, unmistakable and is confined to the left crossed pyramidal tract. There is much less intense degeneration in the right direct pyramidal tract.

In the right pyramid there is still degeneration by the Marchi method, but it is much less intense than in the left crossed pyramidal tract in the cervical region. Degeneration by the Marchi method is still shown in the middle portion of the foot of the right cerebral peduncle. It is much less intense than in the left crossed pyramidal tract of the cervical region.

In the right internal capsule by the Marchi method a number of degenerated fibers can be seen, but these are so few in number that it is impossible to state definitely that there is degeneration of the motor fibers.

The Betz cells of the paracentral lobule show no change by the Marchi method.

Case II. W. E., seventy-seven years old, was admitted to the Philadelphia Hospital August 31, 1903, service of Dr. Wm. G. Spiller. The notes made by Dr. Spiller on the same day are as follows: "The patient is completely unconscious. The left palpebral fissure is larger than the right. The left pupil is larger than the right. The lower distribution of the left seventh nerve is paralyzed. The man makes no effort to draw up either side of the mouth when he is stuck with a pin. The left upper limb is completely paralyzed and is spastic at the elbow. The biceps, triceps and wrist reflexes are exaggerated on both sides. Both lower limbs are somewhat spastic. The left lower limb is almost completely paralyzed. When stuck with a pin he moves the left toes slightly. Both patellar jerks are present, but diminished. The right upper and lower limbs are moved voluntarily, and also when he is stuck with a pin."

The patient's temperature on admission was 101.4° F., but was normal when he died four days after the onset of his paralysis. Here also the urine examination report was lost.

The necropsy was performed by Dr. John Funk, who made

the following notes: "The kidneys are small and show fetal lobulation. The capsule strips with difficulty, revealing a granular area. The cortex is narrow, and is diffused into the medullary portion, which is inconspicuous. The pyramids are visible only here and there. The pelvis contains considerable fat." The other pathological diagnoses were: Fibroid myocarditis, chronic endarteritis and atheroma of the vessels at the base of the brain.

Here also there was no note made of the edema of the cerebral or spinal membranes. Horizontal sections of the brain show no gross lesions.

There is no degeneration of either crossed pyramidal tract by the Weigert hematoxylin, acid fuchsine or Marchi methods.

The nerve cells of the anterior horns of the lumbar region are about normal and not nearly so much pigmented as one might expect in a person so old as seventy-seven years. Chromatolysis is seen in some of these cells, but is not intense.

The nerve cells of the anterior horns of the cervical region are much like those in the lumbar region, except that they are more pigmented.

Many of the Betz cells of the left paracentral lobule are nearly normal, but some are in a state of chromatolysis.

The changes in the cells of the Purkinje are slight. Some of the nuclei are displaced and there is a slight chromatolysis.

The cells of the nucleus ambiguus are in a very good condition, many of them are deeply pigmented and here and there some cells are much altered.

We have here, therefore, two cases of hemiplegia of uremic origin where macroscopically no gross lesion was found. In the first case the paralysis lasted 14 days before death, while in the second case the man lived only 4 days after the onset of the hemiplegia. The changes in the nerve cells as shown in the Betz cells of the paracentral lobule in the first case, while intense on both sides, were distinctly more so on the side opposite the paralysis. The alterations in these cells were not uniform, except that an intense yellow pigmentation was present in nearly all the nerve cells. The cells of the anterior horns of the spinal cord were not much altered, but here too the yellow pigment was abundant.

The degeneration of the motor fibers as shown by the Marchi method was traced from the lumbar region of the spinal cord to the internal capsule.

The degeneration, while not intense, was unmistakable, and was of such a character as would be expected in a primary degeneration of recent origin, in this case fourteen days. It was most marked in the crossed pyramidal tract of the cervical region, and became less intense in the medulla, and cerebral peduncle, and in the internal capsule it was hard to find traces of it.

The degeneration was essentially a primary degeneration, i.e., not due to any destruction of the fibers in a limited part of their course, and was in association with the changes in the nerve cells in the motor cortex. That the degeneration was found only in the motor fibers of one side, is explained by the more intense changes in the cortical cells belonging to these fibers, and it is a fair presumption that had the uremic poison or poisons had time to act further, there would have been also a primary degeneration of the motor fibers of the opposite side.

I hardly expected to find recent degeneration by the Marchi method in the second case, for here the hemiplegia was only of four days' duration. Changes were found, however, in the nerve cells of the cortex, cerebellum, medulla and the anterior horns of the spinal cord, but these were not as intense as in the cells of the corresponding regions of the first case.

It is hard to explain why the alterations in the nerve cells were more intense on one side of the cortex, except by the theory of *locus minoris resistentiæ*, which is hardly an adequate explanation.

As a result of the study of these cases we must come to the conclusion that a toxic process like uremia may produce definite changes in the nerve cells of the brain and spinal cord, and that these changes may be more marked in the motor cells of the cortex, and in association with these alterations in the nerve cells of the motor cortex we may have a primary degeneration of the motor fibers, provided the duration of the hemiplegia is long enough.

The effects of other toxic processes upon the central nervous system have been carefully studied, and changes in the nerve cells of the brain and cord have been repeatedly ob-



served. These alterations, however, have not been uniform or characteristic, and it may be that the findings in the first case may have an important bearing on the future study of these conditions.

I am indebted to Dr. Charles S. Potts for the material and notes of the first case, and to Dr. Wm. G. Spiller for the material of the second case, and for his assistance.

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## Society Proceedings

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### NEW YORK NEUROLOGICAL SOCIETY.

February 2, 1904.

President, pro tem, Dr. Joseph Fraenkel, in the chair.

*A Case of Huntington's Chorea (Degenerative Chorea), with Limitation of the Movements to the Face and Extremities of the Left Side.*—This case was presented by Dr. J. Ramsay Hunt. The patient was a Hungarian, 33 years old, the youngest of seven children. He had been a resident of the United States for six years. No history of choreiform movements in his antecedents could be elicited. From the patient's sister it was learned that he was extremely dull, even as a child, and lacked interest in his studies. For the past three years he had twitching movements of the left upper extremity, confined chiefly to the fingers and wrist of the left hand. Similar muscle-twitching was also present in the left lower extremity, consisting of slight flexion movements in the ankle and toes. Occasionally the left quadriceps extensor contracted, elevating the patella.

The face was the seat of irregular grimaces and twitchings, and the latter were also present in the tongue, interfering at times with speech. These movements were not violent, and seemed to be increased by voluntary movements of the parts. The patient complained that the left upper extremity felt cold and heavy, and that finer movements of the hand, such as eating, were interfered with.

Mentally, the patient was dull. He was cranky and irritable at times, careless in his dress, and was unable to obtain any employment. At times, he had mild acute mental symptoms and apparent hallucinations. He had complained of frontal headaches at intervals since the onset of the trouble. Otherwise, the examination proved negative. Muscular power was unimpaired; there was no ataxia; no sensory disturbances. The pupils and all reflexes were normal. He had never had a convulsion.

Dr. Hunt said that the character of the twitchings, although slight and limited to the left side, resembled those observed in Huntington's chorea. The constancy of the symptoms, the pronounced and progressive character of the mental changes, even in the absence of heredity, pointed very strongly to a degenerative form of chorea. An initial psychosis with secondary motor manifestations would deserve consideration in the differential diagnosis.

*A Case of Multiple Cerebellar Tumors.*—The specimen was shown by Dr. B. Sachs. The patient was a boy, 17 years old, a native of Russia, who was admitted to Mt. Sinai Hospital on Nov. 8, 1903. He complained of vague symptoms, and was discharged after a few weeks with the diagnosis of neurasthenia.

He was readmitted to the hospital on Dec. 19th, and stated that for eight weeks previous to Nov. 8th he had suffered a great deal from occipital headache, daily vomiting, difficulty in speech and unsteady gait, associated with dizziness.

When Dr. Sachs first saw the patient, on Dec. 28th, he found, in addition to the subjective symptoms above mentioned, a very distinct scanning speech similar to that of multiple sclerosis. There were marked ataxic

movements of the left upper extremity, a distinct titubating walk, and double optic neuritis. A second examination on Jan. 3, 1904, showed an increase in the ataxic tremor of the left upper extremity, which was also somewhat weaker than the right. The knee-jerks were present, but not exaggerated. There was slight ataxia of the left lower extremity; a marked plantar reflex; no Babinski sign. The scrotal reflex on the left side was increased; also the abdominal reflex on that side. There was no difference in the facial innervation, but some weakness of the left external rectus. On Jan. 8th, Dr. Gruening reported that the optic neuritis was progressing, and that there were hemorrhages in the fluid. Hearing was normal.

On Jan. 15th the patient's skull was trephined for the purpose of relieving pressure and preventing the development of total blindness. The patient died from shock a few hours after the operation.

*Cerebro-Spinal Lues (Syringomyelia Symptom Complex).*—This case was presented by Dr. Isador Abrahamson. The patient was a male, 35 years old; single; a peddler, and a native of Roumania. When he was 11 years old, after a fright, he became blind in the right eye and the vision of the left eye became impaired. Some improvement in sight occurred within two months.

When he was 16 years old he contracted a chancre, with the usual secondary symptoms. He was treated for this disease for one year with both external and internal remedies. He was moderately addicted to the use of alcoholic stimulants, and smoked excessively.

This case, which was reported in detail by Dr. Abrahamson, was probably one of cerebro-spinal lues, presenting the syringomyelic symptom complex, or else it was a case of syringomyelia, plus lues, or possibly of luetic origin. Such cases, the speaker thought, were rather uncommon, and were naturally of considerable clinical importance.

Dr. Sachs, in discussing this case, said he had seen some cases, which, while luetic, presented the clinical aspect of syringomyelia. He regarded these cases as examples of cerebrospinal lues, not luetic syringomyelia.

*Flaccid Luetic Hemiplegia with Atrophics.*—This case was also presented by Dr. Abrahamson. The patient was a male; 26 years old; married; a Russian peddler. He was an excessive smoker and used alcoholic stimulants in moderation. He had lues four years ago. Ten years ago he had an attack of parasitic alopecia, and six years ago he sustained a severe fall. This resulted in a Colles' fracture and he was said to have been unconscious for a long time.

About two months ago he was obliged to remain in bed for three weeks on account of stiffness of the neck, violent neuralgic occipital pains, and headaches, chiefly nocturnal. During the third week of this illness he began to suffer severe right-sided headaches, with vertigo.

Three weeks ago, while in a café, he felt dizzy and staggered as though drunk. He fell to the floor and found that the right side of his body was numb and paralyzed. Speech was also lost. This condition lasted about five minutes, when he apparently again felt normal. A short time afterwards he had a second attack lasting five or six minutes, and in the course of two hours he had four additional similar attacks. From the sixth attack, however, he failed to recover; speech was lost for four days and the paralysis still persisted.

At the time the case was presented there was paralysis of the lower two-thirds of the right side of the face and of the right upper and lower extremities. There was wrist-drop and foot-drop of the right side, flaccidity of the right hand and forearm; also of the leg and foot. Decided wasting was observed in the right posterior forearm musculature; also, but to a less degree, in the right leg. The electrical reactions in the



posterior forearm were much diminished; myotatic irritability was diminished; sensibility was intact; heart was normal.

Dr. Abrahamson said that in view of the electrical changes, the marked wasting, flaccidity and altered myotatic irritability, all occurring within three weeks after the onset of the attack, he felt justified in calling the case a flaccid hemiplegia with atrophy.

*Jacksonian Epilepsy of Luctic Origin; Improvement under Anti-Luctic Treatment.*—This case also was presented by Dr. Abrahamson. The patient was a male, 39 years old, a shoemaker by occupation and a native of Hungary. He was married and the father of eight children, of whom six were living. His first wife had three miscarriages, occurring about the third or fourth month. The patient had typhoid fever in childhood. He was a heavy smoker and a moderate drinker. He positively denied venereal infection.

His present illness dated back to Dec. 15, 1903, when he began to suffer from frequent attacks which were ushered in with a feeling of numbness in the right hand, followed by a drawing in of the thumb, flexion of the fingers, and semi-pronation of the hand. The numb sensation spread to the shoulder, then down to the hip and feet. He complained of weakness of the leg and had to sit down to keep from falling. Speech was also temporarily lost. Each of these attacks, which sometimes occurred at hourly intervals, lasted about fifteen minutes, and were followed by some weakness of the right side and slight dizziness. He also complained of left-sided headaches and slight nausea and epigastric distress at the end of the attack. There was also rolling of the eyes during the attack, and rolling of the tongue upon attempting to speak. No frothing; no biting of the tongue; no diplopia were observed. Micturition and defecation were not affected. There was no loss of consciousness.

An examination showed that the right pupil was larger than the left. The pupillary reactions and ocular movements were normal. There was weakness of the entire right half of the body, including the lower two-thirds of the face. There was some exaggeration of the deep reflexes on the right side. The special senses were normal. The eyes showed a beginning papillitis.

The patient was put upon inunctions of mercury and large doses of potassium iodide. At first, the weakness on the right side increased, and a right hemianesthesia of somewhat irregular distribution developed. Subsequently, he improved rapidly, and at the time of presentation he had entirely lost his attacks, the right-sided weakness was much less, and only scattered areas of diminished sensibility were present over the right side.

*Arterio-Sclerosis of Spinal Cord, with Hemorrhage.*—The case was reported by Drs. Joseph Collins and Edwin G. Zabriskie. M. H., a fireman, noticed toward the end of 1902 fatigue on exertion, jerking sensations, occasional sharp pains in the lower extremities, and a sensation of heaviness, accompanied by difficulty in holding his urine. These symptoms steadily progressed, until he awoke one morning and found himself unable to stand or walk. There was also incontinence of the bowels and bladder.

On examination, it was found that he was unable to flex his thighs slowly, and there was slight atrophy of the left anterior and inner thigh muscles. The reflexes were absent; Babinski's phenomenon was present. Power in the upper extremities was fair, but he was easily fatigued. There was slight quantitative diminution of sensation in both lower extremities, and a zone of hyperesthesia as wide as the hand above the trochanters. There was slowness of speech and of mental reflexes. Also a moderate degree of general arterio-sclerosis was present. Death supervened gradually of cardiac weakness.

Autopsy: Macroscopically, there was arteriofibrosis everywhere, only slightly marked in the brain and bulb, but very marked throughout the cord. The vessels were distended with blood, and there was some extravasation into the perivascular spaces. The changes consisted in thickening of the media and propria, with loss of muscular tissue. A hemorrhage was found in the ninth dorsal segment of the cord, involving the right posterior and left anterior horns. There was sclerosis of the glia around the margin of the cord and in the lateral pyramidal tracts. Secondary degenerations were found in marginal portions of the right column of Goll, Gowers, and the direct cerebellar tracts on both sides above the lesion, and the crossed pyramidal tracts, and columns of Türek below the lesion. There was no definite degeneration of Schultze's tract or the other descending tracts of the posterior columns, excepting in the lower lumbar region, where there was a small area in the triangle of Gombault and Philippe.

Dr. Zabriskie said it was interesting, in view of the difference of opinion as to the origin of the fibers in the descending tracts of the posterior columns to note that in this case, although the right posterior horn was almost completely destroyed, the comma tract and areas of Flechsig and Philippe-Gombault were not involved; this would seem to point to the exogenous origin of these fibers.

*Report of Two Cases of Tumor of the Ponto-Medullo-Cerebellar Space (Acoustic Neuroma), with Operation.*—Drs. J. Fraenkel and J. Ramsay Hunt reported these cases:

Case I. Reported by Dr. Fraenkel; operation by Dr. Charles A. Elsberg. The patient was a man, 48 years old, a theatrical manager, who entered the Montefiore Home on July 1, 1903. One brother was an imbecile; otherwise his family history was negative. His previous personal history was also without bearing on the present condition. He denied excesses and venereal infection.

About five years ago the patient first noticed that his hearing on the right side was impaired, so that he had to use his left ear when at the telephone. A year later his gait became staggering and uncertain, and he could not coördinate his lower extremities at all times. The right lower extremity was the first to be affected. The patient did not notice that he swayed to one side more than to the other. Three years ago his gait frequently was like that of a drunken man, and two years ago a transient diplopia was noticed. About the same time the lower extremities became markedly spastic, his sight became impaired, his speech became stammering, and he noticed that he was tremulous when writing or performing any other intentional function with the upper extremities. During the last year, occasional insufficiency of the sphincters was noticed, and he was unable to walk without assistance. At no time was there any pain, paresthesia or girdle sensation.

An objective examination showed static and locomotor ataxia. Romberg's symptom was present. The patient fell and inclined to the left side. There was slight mental hebetude and occasional emotional explosiveness. There was motor weakness of all four extremities, particularly on the left side; a tactiform unsteadiness of both upper extremities, particularly of the right; loss of position sense in right-sided upper extremity; exaggeration of reflexes, particularly on the left side; Babinski's sign present on both sides, more marked on the left; marked nystagmus; scanning speech; considerable choked disk, with retinal hemorrhages; deafness of the left ear.

Six weeks before operation, a paralysis of all branches of the seventh nerve set in, with marked changes of the electrical reactions.

The operation for the removal of the tumor was performed by Dr.

Elsberg. The patient unfortunately died from what appeared to be an acute uremia 36 hours after the preparatory operation.

Dr. Charles A. Elsberg, who did the operation in this case, said that the opening in the skull was made in a rather unusual situation. In most of the operations for a tumor in the posterior fossa, the cerebellum was exposed by the so-called occipital craniotomy, in which the opening was made in the occipital bone somewhere between the median line and the posterior margin of the mastoid, and below the level of the lateral sinus. For tumors situated in front of the cerebellum, as was the tumor in this case, and for tumors in the anterior and lateral parts of the cerebellum there were several objections to this method of exposure:

1. It was not the shortest route from the surface of the skull.
2. The manipulations in the removal of the tumor must be done by the sense of touch alone.
3. Even with the most gentle manipulations the cerebellum was apt to be contused and its tissues lacerated.
4. In the digital examination of the anterior parts of the cerebellum from the under surface of the organ, the finger must come in frequent contact with the medulla oblongata and perhaps the pons, and the great danger from even slight injury to these structures was well known.

Dr. Elsberg said he investigated this subject for the purpose of finding, if possible, a method by which the disadvantages above mentioned would be avoided.

Actual measurements on a number of skulls showed that the shortest distance from the surface of the skull to the anterior edge of the lateral lobe of the cerebellum on the same side was measured on a line which ran along the posterior surface of the petrous portion of the temporal bone, and reached the surface of the mastoid 1 to 2 cm. behind the auditory meatus. The distance from the outer surface of the occipital bone, below the level of the lateral sinus, to the anterior edge of the cerebellum diminished steadily as the measurements were made more and more distant from the median line. These facts showed that the shortest route to the ponto-medullary space on the same side would be through an opening made in the mastoid process.

If, however, in the cadaver, an opening were made in the mastoid region and the dura incised, the lateral edge of the lateral lobe of the cerebellum fell away from the posterior surface of the petrous portion of the temporal bone, so that fully one-half of that part of the bone could be seen. With only very slight retraction, the lateral lobe could be drawn sufficiently towards the median line so that the auditory and facial nerves could be plainly seen in their course from the ponto-medullary cerebellar space to the internal auditory meatus, and even the ninth, tenth and eleventh cranial nerves could be seen in part of their course in the posterior fossa. The auditory nerve could be cut close to its origin with a fine scissors without touching the pons or medulla oblongata. Dr. Elsberg said he had performed the operation on the dead body a number of times and was convinced of its feasibility. In the living body, where the cerebellum was filled with blood, the same conditions would be found, although to a somewhat less degree. This had been demonstrated by Krause, of Berlin, in a somewhat similar operation devised by him in a case in which he cut the auditory nerve in the posterior fossa for the relief of a persistent tinnitus aurium.

As was well known, considerable of the lateral parts of the cerebellum could be cut away without causing a permanent disturbance in the functions of this part of the brain. Therefore, this was the part of the cerebellum that could be handled with the greatest safety, and at the same time could be most easily retracted. From these facts it followed that



the approach to the anterior edge of the cerebellum along its outer edge was not only the easiest, but also the route by which the organ was least apt to be injured during the manipulations.

An examination into the anatomical relations of the parts in the posterior fossa would soon make it clear that when the ponto-medullary cerebellar space was approached from the mastoid region along the outer edge of the lateral lobe of the cerebellum, neither finger nor instrument need come in intimate contact with the pons or medulla oblongata until the space itself had been reached. It was probable that the correct way to remove tumors from this region was to expose the structures on the central side of the tumor, if possible, and first divide these, and then to work outwards all the time, away from the pons and medulla oblongata. Hence, with this lateral method, the danger of wounding these important structures was reduced to a minimum.

Dr. Elsberg thought it was advisable, in almost all of these cases, to operate in two stages. On Jan. 21, 1904, under chloroform anesthesia, the bone was exposed by a flap of the soft parts, including the periosteum over the mastoid and outer parts of the occipital regions. An opening was then made with the cranial drill, chisel and rongeur, measuring 5 by 8 cm., and extending from above the superior curved line of the occipital bone to within one and a half cm. of the margin of the foramen magnum, and from within one cm. of the external auditory meatus to 3 cm. from the median line. In the upper part of the wound the occipital lobe, covered by its dura, was visible, and in the lower part, the right lobe of the cerebellum, covered by its dura. The greater part of the lateral sinus of the right side was thus exposed. The wound was then closed, the flap being sutured back into place, and a voluminous dry dressing was applied.

The patient was considerably shocked at the end of the operation, but he reacted well to stimulation. His condition remained fairly good until the second day, when his kidneys ceased to act and he passed into an uremic condition and died in 48 hours.

The skin-flap was turned back about two hours after death and the dura incised. With the head turned to the side, the tumor could be plainly seen at a depth of from 3 to 4 cm. and when the finger was introduced it was found that the tumor could be peeled out with the greatest ease. It seemed probable that had the patient survived the first operation, the removal of the tumor could have been accomplished at the second operation in a short time and with very little difficulty.

After the patient's death it was learned that he had had an attack of acute nephritis, with general edema, some years before, and although the urine had been carefully examined prior to the operation and had showed no evidence of renal disease, it was just to suppose that longstanding kidney trouble was the probable cause of the acute suppression of urine after the operation.

Case II. Reported by Dr. Hunt; operation by Dr. George Woolsey. This patient was a Jewish peddler, 42 years old. Six years ago he began to suffer from an annoying tinnitus in the left ear, followed by some impairment of hearing. During the past four years he had had occasional occipital headaches, with vertigo. These symptoms gradually increased in severity and were accompanied by cloudiness of vision. For the past six months there has been an unsteadiness of gait.

When he first came under Dr. Hunt's observation, the watch tick was not perceptible with the left ear, and the tuning-fork was very faint to aerial and bone conduction on that side. There was paresis of the left seventh nerve, more apparent in its upper branch, with slight quantitative electrical changes. There was paresthesia in the sensory distribution of

the left fifth nerve, with objective sensory disturbances. The pupils were unequal, the left being wider than the right. Reactions were present. There were amblyopia and choked discs, and a slow nystagmus in extreme positions. There was hemiasynergia and hemiataxia of the left side. In falling, the patient favored the left, and progression was decidedly to that side. The nuclear reflexes were active; the knee-jerks exaggerated, the left more so than the right. There was no ankle-clonus. The skin reflexes were present, but no Babinski sign.

The diagnosis of a neurofibroma of the left acoustic nerve was made, and operation was advised. From the known pathological character and relation of the surrounding structures of this variety of tumor in general, it was possible not only to localize the growth, but to state in general terms its situation in the ponto-cerebellar space outside of the brain substance, its possible size and consistency, and its enucleability. Its attachments to the surrounding structures consist only of the leptomeninges, blood vessels and adhesions, and when these are divided it would be possible to lift the growth out of its socket in the brain with ease.

With these data at his disposal, Dr. Woolsey decided on entering the occipital bone on its postero-inferior surface, to the left of the median line and below the lateral sinus. The index finger was inserted through the trephine opening and beneath the left cerebellar hemisphere, coming in contact immediately with the nodular surface of the growth, which was broken up by gentle manipulation and removed in fragments.

There was a tendency for the cerebellar hemisphere to rise into the trephine opening, and this, with the digital manipulation, caused some laceration of its substance, with oozing.

Following the removal of the growth, the respirations of the patient became irregular and shallow, with occasional alarmingly long intervals. The pulse was rapid. The operation, which was done under ether, had required nearly two hours. At 5 P. M., three hours after the operation, the patient's temperature was 102; pulse, 112; respirations, 26. The breathing had improved in character, and the patient seemed to be reacting. Slight clonic twitchings of the left side of the face were noticeable. Death occurred at 1 A. M., apparently of respiratory and cardiac failure, just twelve hours after the completion of the operation.

Permission was obtained to remove the brain only. The outer surface of the dura was dotted here and there with little tufts and excrescences, which proved to be attached to the brain cortex, and, when torn away, they left minute depressions, with a punched-out border. Examination of the base showed that the tumor had been almost completely removed, only two small fragments remaining, together with a small blood-clot, scarcely larger than the little finger-nail. The inferior surface of the cerebellum was lacerated, but there was no external evidence of injury to the pons and medulla oblongata. The general ventricular cavity of the brain was dilated, showing that there had been a not inconsiderable internal hydrocephalus. Upon splitting the worm of the cerebellum, Dr. Hunt said he was surprised to find a firm, rounded projection from the left side of the floor of the fourth ventricle, corresponding to the site of the tumor. Microscopic sections through the brain proved this to be an extensive edema and hemorrhagic infiltration of the left peduncle of the pons, evidently arising from the region of the lacerated cerebellum, and gradually encroaching on the vital centers of the medulla. This internal pontile hemorrhage was probably the immediate cause of death.

Dr. George Woolsey said he was much interested in the class of tumors described in the cases reported by Drs. Fraenkel and Hunt, for

they were so definitely localizable and could be so readily enucleated that they were very suitable for surgical treatment if they could be successfully exposed. He believed that this could be done. In the case he had operated on several months ago, which was referred to him at Bellevue Hospital by Dr. Hunt, he knew of no previous experience to serve as a guide in the operation. The tumor was approached from behind and the side by removing a large area of bone, comprising all that part of the occipital bone below the superior curved line and to the left of the median line. The opening left only a narrow bridge of bone between it and the foramen magnum and extended forward into the mastoid until the bone became very thick.

Passing the finger beneath the cerebellum, the tumor was felt and removed piecemeal. This necessitated introducing the finger a number of times, and there was some laceration of the lateral lobe of the cerebellum which did not seem of any moment. The tumor was larger than he expected to find it. In another case he would try to pass a forceps along the finger, seize the tumor, enucleate it with the finger and remove it entire.

The plan of operating in two stages, recommended by Horsley and employed by Dr. Elsberg he thought was most excellent where the exposure was prolonged and much blood was lost. He thought Dr. Elsberg's method of approach had much to commend it, although it was not so much nearer the site of the tumor than the opening he had made as might be inferred. It had the objection that the bone was very thick, so that too much time and perhaps blood was lost in getting through it. In operations on brain tumors it was important not to take too much time in the exposure alone. This objection was obviated by operating in two stages. Dr. Woolsey said the entire operation in his case took no longer, if as long, as the exposure in Dr. Elsberg's case.

After the operation, his patient seemed in good condition and appeared to suffer but little from shock, but symptoms of the latter appeared several hours later, and he failed to rally. On the whole, in another similar case, he would be inclined to operate in two stages and by the lateral approach suggested by Dr. Elsberg.

Dr. George E. Brewer said that he had been interested in the subject of cerebral tumors for many years. He had twice explored the posterior fossa, in the first instance finding a subcortical cerebellar growth of tuberculous origin, which was successfully removed, the patient making an excellent operative recovery. He died some months later, however, from general tuberculosis.

In the second case the patient succumbed after an extensive bone removal, undertaken simply to relieve pressure. A number of anatomical investigations carried on in the dissecting room of the College of Physicians and Surgeons led the speaker to advocate the plan of opening the skull by removing, practically, all of the bone below the superior curved line to within half an inch of the foramen magnum below, and from the median line to a point half-an-inch behind the mastoid. By opening the dura, the finger could be easily passed behind the lateral lobe and reach the situation of these tumors at a depth of less than an inch and one-half from the surface of the wound. Of course, adequate exposure to remove such a growth would necessitate the destruction of a portion of the lateral lobe: this, however, could be done without serious trouble to the patient, as had been demonstrated in his first case.

It was Dr. Brewer's opinion that speed of operation was perhaps the most important factor necessary to success, as these patients almost invariably died if the operation was at all protracted. He was in favor of doing the operation, when practicable, in two stages. The first operation



should consist of the removal of the bone only, which to a certain extent relieved the pressure, and at a subsequent period the dura should be incised and the tumor removed. He thought the primary operation should be done in from twenty to thirty minutes.

Dr. Hunt, in closing, referred to a previous communication, published in conjunction with Dr. Fraenkel, in which five cases of tumor of the ponto-cerebellar space were recorded. In that paper, especial stress was laid on the certainty of localization and the enucleability of this group of tumors, and their surgical importance.

In both of the cases under discussion, in which operation was attempted, the diagnosis of an acoustic neuroma was made, and the operative procedure was modified to meet the known anatomical peculiarities of this type of tumor. In case I the patient succumbed 36 hours after performing the first stage of the operation, apparently from shock, although a renal complication could not be excluded. In case II death was due to laceration of the cerebellum, with resulting effusion of blood into the tissues of the medulla oblongata and pons. Both of the operations were prolonged and tedious, and considerable trauma was inflicted in removing the thick occipital bone, and enlarging the trephine opening. It seemed of paramount importance, in exposing tumors in this locality, that the operation be done expeditiously and with great gentleness, as any concussion must be especially effective in this region. The division of the operative procedure into two stages was also to be recommended.

## BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

March 17, 1904.

The President, Dr. G. Adler Blumer, in the chair.

*Two Pathological Specimens.*—These were shown by Dr. Walton. The first was a piece of skull removed by Dr. Richardson, illustrating one form of change occurring at the seat of an old fracture, in the temporal region of an epileptic. There was history of an old compound fracture resulting from a blow by a piece of machinery; the attacks had lasted three years. The depression was linear and quite marked. The edges of the depression had, however, apparently lost so much substance that the inner surface was practically level, the center of the depression containing an oval hole with thin edges. Under this hole there was a cicatrix of the dura, discolored, apparently by coal dust. This cicatrix, which had been dissected out, was also shown.

The second specimen illustrated a rather unusual form of spinal fracture. A middle-aged man had been struck by a limb of a tree and become paralyzed in the lower extremities, with loss of deep and cutaneous reflexes and with anesthesia to the groin. He was brought to the Massachusetts General Hospital the following day and was operated on by Dr. Mumford. The arch of the twelfth dorsal vertebra was found driven in, and was easily removed by separation of soft parts only. The fragment was shown, consisting of the laminæ, the spinous process and the lower articular processes. The upper articular processes were broken, as were also the pedicles. An opening into the dura had shown the cord crushed.

Dr. Walton also spoke of successful operation for extradural hemorrhage in the case of a boy of ten, who, while sliding upon the banisters four days ago, fell and struck the right side of his head on a step. Vomiting followed, and persisted for 24 hours. The boy walked home, and remained conscious through the day. During the night he became very restless and the following afternoon stupid. On the third day he was brought to the hospital, in Dr. Richardson's service. He was practically unconscious, though he could be roused. There was retraction of the head; the left extremities were not moved so freely as the right. There was Babinski's sign on the left side, but a moderate knee-jerk. There was no spasticity. The right pupil was larger than the left, and reacted only slightly to light. The right lid drooped and the right eye turned outward. There was hematoma over the right ear. Dr. Brooks operated with the expectation of finding an extradural hemorrhage, either with or without fracture. An extensive vertical crack of the skull was found in the temporal region extending down to the base. A large piece of skull was removed and an extensive clot found dissecting up the dura. The middle meningeal artery was ruptured, and there was also continuous bleeding from the dural vessels at a point which had apparently been abraded by a fragment of the internal table. At the time of the report the patient was conscious, the paralysis had almost disappeared and the pupils were nearly alike, both reacting promptly to light; there was still a suggestion of the Babinski reflex.

*Bilateral Facial Atrophy, with Report of a Case and Its Cosmetic Treatment by Subcutaneous Injection of Paraffine.*—Dr. B. T. Burley, of Worcester, by invitation, presented this paper. The patient described was a woman of 23 years, who, after an attack of pneumonia, when 11 years old, had developed marked facial atrophy of both sides. The atrophy

was progressive for a year and a half, but was unaccompanied by pain, paresthesia or fibrillary twitching. The patient had no cough during this period, but she was kept out of school and plied with tonics and cod liver oil. The rest of her body had developed normally, and as she was undoubtedly strong, even athletic, she continued her course at school. She is said to have had two subsequent attacks of pneumonia at 16 and 21 years, from which recovery was complete. These attacks had apparently no effect upon the facial atrophy. In addition to constitutional treatment, her face had been treated locally by electricity, massage and oily inunctions without improvement.

The physical examination on Nov. 1, 1903, showed a well-nourished young woman except as to face. Weight was 130 lbs. The skin over the entire face was pale and much thinned. The subcutaneous tissues from the orbits to the chin, and back to the ears were apparently entirely wanting; the play of the muscle bundles of the delicate facial muscles being everywhere visible. The facial muscles were not atrophied, and their reaction was lively to electrical stimulation. The glands and hair were only slightly involved. The rest of the patient's organs were practically normal. The process having come to rest, the cosmetic defect became the chief factor. After two months' observation, it was decided to employ paraffine subcutaneously. In all nine treatments were given at intervals of a week. Cocaine was injected locally and symmetrically in each cheek, and was followed by injection of 1 to 2 c.cm. of paraffine melting at 109.5 degrees F. Aside from a slight prickling sensation coming on occasionally for the next day or two, which was readily relieved by alcohol bathed over the areas, there was no discomfort. The subsequent swelling was slight. The last three treatments were largely to make the surface uniform, accomplished by small injections and moulding. At the end of this time the patient had in place of the atrophied subcutaneous tissue, an inert, firm but light substance, which, according to the researches of Morton, will gradually give way to new tissue formation. The patient's satisfaction encourages similar treatment for any affected by this rare disease. The writer spoke of four cases of facial hemiatrophy similarly treated in Europe.

Dr. Burley had collected a list of 70 unilateral and 4 bilateral facial atrophies which were either omitted in the collection of Beer (1898) or since published. This makes the total list: bilateral, 10; unilateral, 212.

In discussing the etiology it was shown that during the first 20 years, when most of the cases occur, about 50 per cent. follow infection; while 15 per cent. follow trauma. The pathological data were reviewed and special reference made to the recent monograph of Barrel, in which are described three cases of cervico-facial hemiatrophy. An autopsy in each case showed a marked pulmonary tuberculosis, and the inferior cervical ganglion on the affected side was involved in a fibrous pachy-pleuritis extending from the pleura. This at least suggests that the cervical ganglia are important factors in facial atrophy.

The writer believed that attempts to restore the normal tissue had never succeeded in a pure case, and therefore the paraffine method for the restoration of the part was fully justifiable.

*The Prognosis of the Post-Traumatic Neuroses and Psychoses.*—Dr. James Jackson Putnam read this paper. The statements were based on an analysis of the eventual outcome of about one hundred cases, three-quarters of which were those of patients who had instituted claims for damages on account of injury.

The symptoms presented by the patients had been mainly those of different sorts of hysteria, but included also a few instances of mental disorder. In most of the hysterias typical anesthetics had been present,



while in others the symptoms, although still classifiable as hysterical, had been of the neurasthenic type. Sometimes anesthesia had been strikingly absent where its presence would have been expected.

The final evidence as regards health had been collected, partly by personal reëxamination of the patients, partly by inquiries addressed to physicians conversant with the facts, and the interval of time which had elapsed between the injury and the final record varied from three to twenty years.

The results of the investigation had been, in general terms, that sudden recoveries, even [in the medico-legal cases] after a termination of the suit, had been extremely rare, while a considerable proportion of the patients, fully 25 per cent., had remained more or less invalided. Between these two groups lay another, comprising the majority of the cases, constituted by the patients who had gradually improved and substantially recovered, in varying lengths of time. Several cases were reported indicating that early return to work does not always lead to complete recovery, even though the signs may have been those of pure hysteria alone, and that "substantial recovery" does not always mean freedom from all signs of typical hysteria. Thus two patients, both of whom had been at work some eight or ten years, and making but few complaints, still presented distinct traces of hemianesthesia, associated with differences of temperature between the two sides of the body.

The cases of which the outcome had been the least satisfactory were the hysterical paraplegias and the hysterical psychoses of pronounced type.

In referring to the often repeated statement that these neuropathic disorders are not often seen after injuries for which no suit of law is brought, the reader said that, in the first place, there were so many exceptions to this rule as to render it valueless as a generalization, and that, in the second place, it is easy to explain the greater frequency and severity of the cases presenting medico-legal complications. One of these reasons being that the emotional influences to which the patients are exposed are of course extremely unfavorable. On the other hand, the view was maintained that rapid recovery, even in the few cases where it occurred, must not be taken as an evidence of fraud, and cases were cited showing that this, as indeed every other outcome of the sorts indicated by the analysis, was to be met with in cases of uncomplicated post-traumatic hysterics.

A vigorous Italian laborer had recently been treated at the Massachusetts General Hospital, who had come in with complete hysterical analgesia and paralysis of one leg, supervening on an attack of pain, and had been discharged practically well, after one day of treatment.

Finally, the reader said it was plain that accident-psycho-neuroses shared the fate of the psycho-neuroses of emotional origin in general. The physical injuries often added an element of importance, but the conditions which were mainly decisive were those involving questions of predisposition (or preparedness), and of the severity and suddenness of the mental shock. On the whole, the reader had been surprised how many of the patients whose later histories he had studied had become confirmed invalids or partial invalids, and thought that if experts would investigate their own cases from this point of view there would be less said, on the witness-stand, about the probability of speedy recovery, even by those who thought the illness due rather to litigation influences than to accidents as such. Of course, there are large numbers of light cases that end in recovery without coming to the attention of the expert neurologist, but the reader's remarks had reference only to cases of a severer sort than these, yet not so severe but that it might have been thought, and often had been assumed by one or another physician, that they would soon get well.

Dr. Waterman said he had taken this occasion to look up the cases of traumatic hysteria, uncomplicated by litigation, which had visited the Massachusetts General Hospital during the past year. These were cases resulting from trauma or nervous shock.

There were thirteen such cases, nine of which showed definite anesthesias—seven of these being hemianesthesia. The others presented either spasms or hyperesthesia. With three exceptions the symptoms persisted after a year—many of them lasting several years, and unfitting the patients for carrying on their customary duties. With one exception these were in people under thirty years of age.

Dr. Prince said that Dr. Putnam's paper was most welcome, for the time had come to thresh over again some of the problems of traumatic neurosis in the light of the data furnished by our experiences since the matter was so widely discussed some ten years or so ago. There is one great inherent difficulty in determining the prognosis in traumatic hysteria, and that is this: The disease is not a self-limited one, but is largely conditioned for good or for ill by the environment—by environment meaning not only the surroundings of the patient, but the mode of treatment and the attitude of mind of the physician and those closely associated with the patient. By this environment the attitude of mind of the patient himself will be largely determined, excepting in certain exceptional and robust natures. Hysteria whether traumatic or not does not necessarily tend towards recovery, but, by the unfavorable influence of this environment, may be continued indefinitely. Everybody knows that a case of hysteria which is perfectly curable by rational methods, may yet be continued indefinitely by injudicious treatment. A case that he had in mind, for example, had been bed-ridden for twenty-five years, although under the care of some of the most celebrated men of the profession. When, her disease was recognized, by a new physician, she was practically well in a few weeks.

In traumatic cases it is well known that there is a diversity of opinion among medical men in regard to the gravity of the injury inflicted, some believing in, and educating the patient in, a belief in the incurability of the disease. When the case is the subject of litigation such views are necessarily impressed upon the patient. When, therefore, we seek to determine the prognosis of traumatic neurosis, we do not limit the inquiry as the surgeon does when determining the prognosis of appendicitis when operation has been performed; we do not inquire what are the possibilities of the disease for recovery, but what we really ask is, what is the outcome of traumatic hysteria when subjected to any and every sort of "environment," including the most unfavorable, or what is the prognosis under the conditions to which the subject of litigation is usually subjected. Surely from all that is known of hysteria this is not a fair criterion of the prognosis of hysteria itself—whether traumatic or not.

In non-litigation cases, whether traumatic or not, everybody knows, too, that an important element in the prognosis is the correct recognition of the nature of the disease (the pathological diagnosis), and, second, impressing upon the patient its curability. Take the case, for example, shown by Dr. Sidis at the last meeting of this Society. It was one of hysterical motor attacks and anesthesia, simulating Jacksonian epilepsy, due to an emotional shock. It had continued five years, and was likely to continue indefinitely, but the true pathology of the disease being recognized by Dr. Sidis, the disease has been rapidly cured to all appearances. The attacks can no longer be excited. Take again the case of fear-psychosis reported by Dr. Prince at the same meeting. That patient has suffered continuously for twenty years, but now that the true pathology of the affection is being recognized, improvement has so far taken place that the

patient is able to lead an ordinary life and would be satisfied if permitted to let well enough alone. It is a truism that a very large number of cases of hysteria may be continued indefinitely unless their true pathology be recognized and appropriate treatment be applied.

Another case Dr. Prince mentioned was more than amusing; it pointed a moral: A successful business man, of great sagacity, was brought to him in consultation for neurasthenia of a pronounced type. He had been under many physicians and had been sent hither and thither in search of health. After a long consultation it seemed to Dr. Prince a case of "patient and not the disease." So turning to him, Dr. Prince said gravely, "I want to say to you, first, that the diagnosis in your case is perfectly clear." The patient looked up at him in an anxious way as if awaiting his doom. "My diagnosis is you are a d—d fool," Dr. Prince said. The man immediately jumped up from his seat and seized Dr. Prince's hand, saying, "Thank you, doctor; that's the kind of talk I like to hear." He promptly proceeded to get well.

It is clear that if we fail to recognize the pathology of idiopathic hysteria, and if we believe and impress the belief upon the patient that he is suffering from an incurable disease, that the chances of cure will be small. Still worse is it when he is told he has sclerosis, hemorrhage, or injury of the cord. And yet that is what is generally told the patient in litigation cases, and that, too, by his best counsellor, his own physician. The wonder is that so many get well, not that many do not. We, therefore, can never determine what is the prognosis in traumatic neurosis until the true pathology of the affection is generally recognized and the patient is subjected to rational hygiene and "environment."

On the other hand, Dr. Prince did not wish to have it thought that he considered hysteria a trivial disease. Some cases he believed to be curable, but this is more particularly true of the idiopathic variety. Some people are born, live and die hysterics, and in traumatic cases sometimes the disintegration of cerebral associations is so grave that these associations may never again be thoroughly reestablished. He had reported three apparent cases of hysterical monoplegia of twenty-five years' duration in soldiers. Hysteria may be a serious disease, but what he wished to point out is that no statistics or study of traumatic neurosis, under the conditions usually met with will give true information of the prognosis of this affection *per se*.

As a summary he repeated what he had written elsewhere:

1. In traumatic cases the tendency is to recovery, unless prevented by injudicious treatment or other influences.
2. The earlier appropriate treatment is begun, especially in neurasthenic cases, the better the prognosis.
3. Many cases entirely recover.
4. Some cases only partially recover, so far as the complete disappearance of the symptoms is concerned, but yet recover sufficiently to enjoy life and to resume their vocations.
5. A minority of cases do not improve at all, or not sufficiently to make any material difference in their life.
6. The time necessary for recovery varies with the peculiarities of the case, the surroundings, the existence or not of litigation, etc.
7. While litigation is in progress little improvement can be expected, though it may occur.
8. The longer neurasthenic symptoms have persisted the more firmly established they become (habit symptoms), and the more difficult they are of cure.
9. Hysterical stigmata may disappear after existing a long time (many years).



10. Severe mental symptoms make the prognosis less favorable for a complete cure.

11. Litigation prolongs and intensifies the disease by suggestion on the part of the physician and auto-suggestion on the part of the patient.

Dr. Webber called attention to only two points in the consideration of the effects of injuries. In most cases he believed many of the phenomena produced were due to the anticipation of injury; the patient realizes a few minutes or seconds preceding the accident that there is danger. There is fright; the result is a mental shock, and many symptoms are the outcome of this mental shock. If that could be eliminated the evil effects would be less. Some years since a patient was in a sleeper at a junction, his car being across the track on which the coming train was approaching. Its engine struck his car at right angles, and his section mate was killed. He was asleep, and was thrown out onto the station platform. He was severely injured in the back, bruised and strained. After a stay in hospital Dr. Webber saw him. There were only such pain and disability as might arise from severe strains, wrenching, and bruising, of the back. Mental and general nervous symptoms were not present. He made good progress towards health, and left before entire recovery.

Hysterical symptoms are often, perhaps generally, reflex in nature. From a wound various conscious, or unconscious, sensory impressions are conveyed to nerve centers. Certain reactions follow, as a contracture, a spasm, or a modification of the mental state or character. A lacerated cut of the forearm was followed by so-called hysterical contracture of elbow, wrist and fingers, with little or no pain in the scar. Some impulse from that scar served to excite activity of motor cells in the nerve center, and then the contracture was maintained.

It is only necessary to suppose there are various impressions at the seat of injury, which may be slight, passing to the brain, and, without coming within the sphere of consciousness, setting up reactions shown in various abnormal mental states, to obtain most if not all the mental results following injuries. These phenomena may be referred to the subliminal self; or we may be satisfied with a simple reflex influence or action as a sufficient explanation.

Sometimes a pain or discomfort will direct attention to the seat of origin of the reflex action, but without such guide we may remain ignorant of the location of the irritation producing the changes.

An association of ideas, or posture, may be sufficient to give rise to hysterical reflex phenomena: as, where a patient, sitting on a window-sill, turning her head sideways and downwards, saw her husband walking with a woman of whom she was jealously suspicious. She had an attack of spasm and contracture. After that when she took the same position she had the same kind of an attack.

Dr. Knapp agreed fully with the opinions advanced by Dr. Putnam. In many cases, of course, the physical injury is apparently slight, yet, on comparing a considerable number of severe cases with mild ones, he had found a much greater preponderance of severe physical injuries among the severe cases—a greater number of fractures of bones and of vomiting of blood or loss of blood in the stools suggesting internal physical injury.

It had been urged by Dr. Prince, after inquiry of various 'varsity elevens, that such conditions did not follow injuries on the football field. Football players are especially trained and are anticipating blows and physical shocks; the accident does not come suddenly and unexpectedly. Nevertheless, Dr. Starr has reported several cases in players on 'varsity teams, and the speaker had observed such cases in players on preparatory

school teams who were less thoroughly trained. Like Dr. Putnam he had never seen the rapid and marvelous recoveries of which the lawyers were so fond of telling, as a result of the "gold cure."

He had investigated the subsequent condition of a considerable number of patients with traumatic hysteria, which he had reported in *Brain* in 1897, and his figures agreed quite closely with those of Dr. Putnam. Less than 10 per cent. made a complete recovery, about an equal number had died as a result of their condition or from intercurrent disease. Of the remaining 80 per cent. about one-half remained *in statu quo*, and the other half made some improvement, and were able to do some work, although still suffering from the disease. Many of these patients go to work and fail to consult a physician, just as many other patients with chronic nervous disease, tabes or hemiplegia, become discouraged at the inefficacy of treatment, and do the best they can themselves. In several cases he had noted the moral deterioration shown by the development of the alcohol habit.

The prognosis of hysterical paraplegia seemed worse than that of other forms of hysteria. Deliberate fraud had not been observed, but these conditions were sometimes found in the scamp. In one such instance prolonged observation had proved the genuineness of the nervous conditions, although the patient was obviously exaggerating. The man lost his case, but he was still going about on crutches, many years after.

There would be less uncertainty in our opinions upon this subject were it not subjected to the baleful influence of the law, which is as fatal to progress in this as it has been in the study of mental diseases. In spite of the facts and the present state of our knowledge as to these conditions, we still hear much from corporation attorneys and in the daily papers in disparagement of the claimant for damages. There are possibilities, however, of questionable practice on the part of the railways. The claim agent, whose methods are not always pure, often gets ahead of the "ambulance chaser"; purchase of evidence, subornation of witnesses and even tampering with the jury are not unknown; and judges are sometimes biased in favor of corporations, often cutting down a verdict, but rarely increasing it. A notorious instance of unjust ruling in behalf of corporations has recently been reported from Missouri.

Dr. Prince had stated that it is hard to make a prognosis as to the disease itself unless we know the conditions under which the patient lives. That is so, and it applies to all cases of all sorts of disease. In every case we can form an opinion as to the outcome of the individual case from an estimate of the severity of that case and the general prognosis as shown by statistics in similar cases. We may know the general prognosis of tabes or epilepsy, but we cannot tell whether the individual patient may become rapidly ataxic or develop a status epilepticus.

The conditions under which the claimant for damages lives are, of course, unfavorable and influence prognosis, but we know that many cases of traumatic hysteria, without claims or litigation, are chronic and do not recover for a long time, if ever, although we may do our best in the way of treatment. We must not forget, too, that the treatment best adapted to such cases is of long duration and expensive, so that it is unattainable by patients of the poorer class.

Dr. Putnam's hope of reform in methods of procedure and of education of the legal profession in this matter seemed to Dr. Knapp a Utopian dream. The lawyers are too fixed in their old ways to accept any reform in expert testimony. Lawyers for the plaintiff apparently wish every case to be regarded as most serious and all symptoms to be referred to the accident, while lawyers for the defence seem to desire that nothing

whatever be found out of the way about the plaintiff, or, at least, that all his symptoms will promptly disappear.

Dr. Walton thought that in most of the cases of hysteria, hypochondria, or other psychoneurosis accompanying or following trauma, the trauma is only one, and that not the most important, etiological factor. The essential and underlying condition is usually the constitution of the individual which renders him subject to such manifestations. In legal cases, as Dr. Prince had suggested, the question is still further complicated by the surroundings. The constant self-study, frequent examinations, continued attendance not only of numerous physicians, but of legal representatives from both parties, the solicitous attention of friends, and the uncertainty regarding the financial outcome, may well set up a habit of invalidism which persists long after the effects of the trauma itself have passed away. His experience would not warrant the conclusion that trauma without mental complication is prone to produce psychoneuroses in persons of average nervous stability. It is, however, true that individuals constitutionally hysterical, hypochondriacal, or given to the invalid habit are apt to attribute their entire condition to some experience with which, or near which, the first notable symptoms appear. This experience, whether the immediate and exciting cause or a mere coincidence, may be either mental or physical, but if physical is apt to be accompanied by some sense of injustice or other depressing mental influence.

Dr. Fuller gave the subsequent history of one of the cases referred to by the reader. The case was treated at the Adams Nervine Asylum and was of special interest because of the mental symptoms which developed in his three or four weeks' residence there. These made the matter of his mental integrity so questionable that it was necessary to send him home. From the first he would walk around about the house with his hand on his head complaining of bad feelings, which were sometimes pain and sometimes indescribable sensations of discomfort. His attention was strongly fixed on this spot on his head.

He was much preoccupied, often sitting alone in his room gazing at space for considerable periods, and even when engaged in conversation he would stare vacantly at the wall and delay his answers, and sometimes forget the question, or having started to make a reply, would pause and forget what he had said. There was a tendency toward stereotypy in actions and positions.

After a little he developed illusions. There was another patient in the house, who came from the town where our patient had attended boarding-school. This gentleman was not acquainted with our patient and did not know that he had been in the same town. Our patient soon began to get the idea that this gentleman was talking about him, and spreading reports of his conduct when at school, and apparently had either hallucinations or illusions of hearing. Finally he attacked the patient, siezing him by the hair and frightening him very much. After this he was suspicious and irritable, so that it was necessary to send him home. From two letters received from his father, a very intelligent observer, I have learned that the patient has been quiet, but still has not appeared to be any better; is moody and irritable and inclined to be suspicious of his father. These developments certainly showed marked qualitative mental changes, and whether or not the condition is due to the accident six years ago, is perhaps questionable.



# Periscope

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## NOUVELLE ICONOGRAPHIE DE LA SALPETRIERE

(Vol. 17, 1904, Jan.-Feb.)

1. Parkinson's Disease. RAYMOND.
2. A Contribution to the Study of the Anatomy of the Posterior Columns (A Case of Cauda Equinal Lesion and a Case of Incipient Tabes). NAGEOTTE.
3. Pathological Anatomy of Combined Tabetic Sclerosis. CROUZON.
4. Graphic Study of the Plantar Reflexes in the Normal Condition and in Some Spasmodic Affections of the Pyramidal System. VERGER AND ABADIE.
5. Note on the Hypotonic Flat Foot in Dementia Paralytica. FÉRÉ.
6. Syphilis in Art. LAIGNEL-LAVASTINE.

1. *Parkinson's Disease*.—This is a résumé of the facts that are known about this disease told in the clear and orderly fashion typical of the author's work. Three cases are described and their photographs are included in the article. In discussing the pathology of this disease the author is obliged to admit that nothing definite has as yet been advanced in spite of the numerous postmortem examinations that have been made. Redlich found certain changes in seven cases which he thought were typical of senile changes of the nervous system. To this condition he gave the name of perivascular sclerosis. The myopathic theory of the disease found its justification in a sclerotic change found in the muscle by Pierret and Vesselle. In 1901 Schwann found certain muscular changes consisting of an intense proliferation of the nucleus in the interstitial substance. The nervous system in this case studied with the most approved technique showed nothing abnormal. To test the accuracy of the finding in the muscle, a piece of muscle was excised from a living patient with Parkinson's, but the changes were not present. The pathology of this disease then has not advanced since the time of Charcot, who was one of the first to describe it clinically. The usual therapeutic methods are mentioned, such as reëducation, exercise, electricity and the drugs such as hyoscyne arsenic and the cacodylate of magnesia.

2. *Anatomy of Posterior Columns*.—The observations here recorded are derived from the careful microscopical examination of two cases in the service of Babinski. In the one case there was a lesion of the cauda equina, including the fourth lumbar causing a compression myelitis. In the other case there was a beginning tabes. In order to make his explanations clear the author takes pains to define the following anatomical terms. The zone of fibres which bounds the grey matter horn and commissure has received the name of marginal zone of Westphal or the cornu-commissural zone. It corresponds to the anterior root zone of Flechsig. The zone which is attacked in tabes incipiens is called bandallette externe. It corresponds to the middle root zone of Flechsig. There lies behind this a zone unaffected in beginning tabes, the postero-external. This is the external portion of the posterior root zone of Flechsig. In discussing the findings in these two cases the author arranges his material under two heads. Under the first he studies the endogenous fibres of the posterior columns, and those of the posterior horn. Under the second he discusses the intermedullary course of the posterior lumbar-sacral roots and the arrangement of the different elementary system of fibres in the territory

of each root of the cord. The points brought out in this study are demonstrated by numerous diagrams and microphotographs. The conclusions are as follows: (a) The endogenous fibers of the posterior columns in the lumbar-sacral region are divided into two classes: the endogenous fibers of thick and those of fine caliber; (b) the endogenous of large caliber form first a bundle in the cornu-commisural zone and second the median sacral triangle or triangle of Gombault and Philippe. This last bundle is at the inferior extremity of a medium peripheral descending bundle, the superior course of which forms in the dorsal region the bundle of Hoche; (c) the median triangle is entirely distinct from the oval bundle of Flechsig, which is a root bundle; (d) the endogenous fibers of fine caliber are in some cases horizontal and in others vertical. The latter are scattered throughout the whole extent of the column of Burdach. Some of them are found in the column of Goll in the cervical region; (e) Lissauer's zone is composed of endogenous finely calibered vertical fibers, which are concentrated in this region. They are not radicular in nature, as has been believed hitherto. They degenerate late in tabes; (f) the network of finely calibered fibers of the posterior horn is endogenous in nature; (g) the column of Clark does not appear to receive fibers from the posterior roots situated below the third lumbar; (h) the *bandelette externe* does not touch at all the posterior horn. It forms at the inferior dorsal region a complicated figure which represents on each side the letter M; (i) the fibers of the *bandelette externe* are root fibers of medium length, which remain within the limits of this formation during their intra-medullary course. Those of the lumbar sacral region do not reach to the column of Goll; (j) the long root fibers go through the postero-external field and not through the *bandelette externe*; (k) the marginal zone of Westphal or the anterior root zone contains outside the endogenous fibers only the short root fibers.

3. *Combined Tabetic Sclerosis*.—In about one-tenth of the cases of tabes the autopsies show that in addition to the usual posterior sclerosis there is also a lesion of the lateral columns. Of late it has been found that this class of cases can be diagnosed during life by the following trias of symptoms: Dragging of the legs in walking, paraplegia and extension of the toes. The author believes that this condition can be explained by some of the recent work on the pathology of tabes, especially by the recent theory of Marie and Guillain in respect to the rôle of the lymphatics of the cord. Seven cases are described in this paper which showed clinically the combination of symptoms mentioned. The post mortem examination in case I. showed combined lesions of the posterior columns and direct cerebellar tract and the columns of Clark. These lesions were not sharply limited to the tract involved, but showed a tendency to involve the marginal zones as well. In the second case the pyramidal tracts were somewhat involved. In the five other cases lesions were met with which pointed to an involvement of the vessels of the meninges in the sense of a lymphatic process which is to be considered as secondary to a posterior syphilitic meningeal involvement. This by extension by the way of a lymphatic diffuse lesion reaches the posterior columns and if the process is unusually intense the lateral columns as well are then involved. The theory here set down denies the systemization of the tabetic process in the manner formerly thought so evident. The author concludes as follows: In these seven cases, five appear to explain the lymphatic theory of tabes and the pseudo-systematic theory of its distribution. The first two are open to question and are probably due to lesions of the Clark columns. The nature of this process is then tabetic and its distribution is pseudo-systematic. This fact is in favor of the lymphatic theory as advanced by P. Marie and Guillain.

4. *Plantar Reflexes*.—A graphic study of the plantar reflexes made by means of the myograph. The paper is illustrated by tracings.

5. *Hypotonic Flat Foot in Paresis*.—The author takes tracings and prints of the sole of the foot in a case of dementia paralytica to study the hypotonia of the muscles of the foot. To this condition he gives the name of hypotonic flat foot. S. SCHWAB (St. Louis).

#### REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(December, 1903.)

1. The Relations of Surgery and Psychiatry. L. PICQUÉ.
2. Synthetic Study of Muscular Reactions in General Paralysis and Discussion of the General Physiology of Reflexes. TOULOUSE and VURPAS.
3. The Reaction Time of Simple Association. H. PIERON.

1. *Surgery and Psychiatry*.—The first portion of this article discusses the problem of the relations of surgery and psychiatry from a general standpoint. While it is not expected that the surgeon become an alienist, nor the alienist a surgeon, it is indispensable to the progress of both sciences that their problems should be attacked from both standpoints by the specialist, each acting in his own proper sphere. The second portion of the article discusses the special problems more in detail. Post-operative psychoses and post-operative neurasthenia are conditions often encountered by the surgeon when the services of an alienist might be of use. The author believes all of these cases show a hereditary predisposition to mental trouble, and in the case of epilepsy, so many cases of which have been reported cured by operation because of insufficient length of observation thereafter, he thinks no case should be surgically treated except by advice of a competent alienist. The surgeon really should be acquainted with the mental condition of his patient. This is well illustrated by hysterics, among whom operations are often the starting point of obsessions. This class of patients should not be subjected to operations except of necessity. A certain class of patients present symptoms in part real, in part simulated, which call for operation and induce the surgeon often by a veritable suggestion oftentimes to operate. Mallet has divided these patients into six groups: (1) Patients obsessed with the idea of a malformation or surgical affection, *i.e.*, the patient who complains of a ridiculous nose or ear. (2) Those who have an obsession taking its origin from a surgical affection. These cases are related closely to the first group, but are more serious and slower in their course. A case cited is that of a woman with systematized delirium and the idea that a snake was in her stomach, the delusion having its origin in an intractable hyperchlorhydria. (3) The hypochondriacal melancholiacs. These differ from the obsessed in that the obsessed suffer from a fixed idea, while these patients suffer from exaggerated sensations. (4) Patients affected with neurasthenia and hysteria with hypochondriacal ideas. (5) The persecuted with hypochondriacal ideas. (6) The persecuted persecutors or hypochondriacal persecutors. The first, fourth, fifth, and sixth groups should not be operated, the second should be, the third may be if there is an evident surgical lesion. These cases are considered from the surgeon's viewpoint. On the contrary, from the psychiatrist's viewpoint, many cases may be helped by operation, *i.e.*, those suffering from surgical affections causing toxemia, as necrosis of bone, collections of pus, etc. All hernias should be operated among the insane, the author thinks. Many other operations, *i.e.*, on the rectum, anus, intestines, eye, crippling deformities of the extremities, etc., the author has seen followed by improved mental condition and even recovery.



2. *Muscular Reactions in General Paralysis and Reflexes.*—The authors use the term reflex in a broad sense as comprising all motor reactions consecutive to an excitation. (1) The idio-muscular reflex is found in paresis. If a muscle, *i.e.*, the pectoral, be percussed we observe two phenomena, a fibrillary contraction and a contraction at the exact point struck. Normally the contraction of the muscle mass is much more general. These abnormal reactions are similar to those found in the dying or just dead. The contraction in mass is dependent upon the integrity of the central nervous system. The fibrillar contraction is a reaction of the muscle itself, spreading only through some of the fibers directly excited while the contraction into a small node at the point struck resembles the contraction of smooth muscle fiber. Paresis provides most of the conditions for the occurrence of these phenomena, and accordingly we see with the decay of the central nervous organs the muscular reactions become more and more primitive and rudimentary; (2) the tendon reflexes are usually exaggerated. This is due to the removal of cerebral inhibition. In the development of the individual it is seen that the reflexes gradually diminish and in direct ratio to the complexity of the center. Thus, the wrist reflexes, and face reflexes, associated with the centers for the highly differentiated movements of fingers and facial muscles, are little in evidence until cerebral control is removed by disease. So we find these reflexes are exaggerated. The author thinks the absence of the patellar reflex and presence of three others highly significant of the spinal form of paresis; (3) the Babinski sign indicates pyramidal involvement. So also does the "phenomena of Strümpell." This latter sign is brought out in a hemiplegic by asking him to flex the leg on the thigh on the paralyzed side. An associated elevation and inward rotation of the inner border of the other foot occurs. The "lip sign of Miénrich," *i.e.*, a contraction of the orbicularis when the upper lip is struck, is present in the new born, disappears in the adult, but reappears in paretics. (4) vaso-motor paresis is mentioned as frequent, as, of course, is also the Argyll-Robertson pupil. The reaction of the pupil to atropine and eserine is three times as long as normally; (5) these changes of reflexes are not only seen in paresis, but in all states, *i.e.*, toxic, exhaustive, in which cerebral inhibition is removed. Paresis is the most perfect type of these states. The author closes by summarizing his results in the following law: "The intensity and the duration of reflexes are in inverse relation to the functional complexity of the nervous system."

3. *Association Time.*—This article describes the technic of a method of taking reaction time, and contains little of special interest for abstraction.

WM. A. WHITE (Washington,)

#### AMERICAN JOURNAL OF INSANITY

(Vol. 60, 1903, No. 2.)

1. Extracts from Writings of W. GRIESINGER. Translated by F. R. SMITH.
2. Hydrocephalus Internus in an Adult. H. J. BERKELEY.
3. Pathology of Acute Delirium. H. A. TOMLINSON.
4. Recognition of Insane in Penal Institutions. F. W. ROBERTSON.
5. Fluctuation of Insanity in Connecticut. R. H. BURR.
6. Study of Non-Dementing Psychosis by Laboratory Methods. C. L. DANA.
7. Status Epilepticus. L. P. CLARK and T. P. PROUT.
8. Object to Be Attained by an Organization of Assistant Physicians. A. P. OHLMACHER.
9. Report of Observations Made in Clinic of J. Babinski. C. G. CHADDOCK.

1. *The Writings of Wilhelm Griesinger*.—This article—concluded from a former number—gives the views of Griesinger on German institutions for the insane, and the lines along which they should be further developed. It shows that this great alienist looked far ahead of his time, and deserves the title which the translator gives him, "A prophet of the newer psychiatry." The views expressed, however, cover ground now familiar to all, and do not need to be reproduced here.

2. *Hydrocephalus Internus in the Adult*.—J. Berkeley reports a careful autopsy in the case of a female epileptic, 44 years old, who showed marked internal hydrocephalus. While certain changes were present, the author found nothing which would account for the production of the hydrocephalus. He also gives a short account of another case in a middle-aged man.

3. *The Pathology of Acute Delirium*.—A clinical and pathological study of delirium, based on observations in 87 cases, divided as follows: Acute delirious mania 23 cases, alcoholic delirium 8 cases, uremic delirium 27 cases, narcotic delirium 2 cases, syphilis (in the acute stage) 2 cases, small-pox (convalescence) 1 case, typhoid fever (unrecognized) 8 cases, septic delirium 13 cases, lobar pneumonia 2 cases, puerperal delirium 1 case. The author gives the results of postmortem examination—both gross and microscopic—in four of the cases. The changes found in the brain were, in general, engorgement and dilatation of vessels, with hemorrhages—in one case covering the greater part of the convexity of the brain beneath the dura—thickening and round cell infiltration of the pia-arachnoid, dilatation of lymph spaces, and proliferation of vascular endothelium, degenerative changes of greater or less extent, affecting large numbers of nerve cells, and some increase of glia cells. In all the cases there were kidney changes, in one case a marked convolitional anomaly. In one case bacterial examination revealed colon bacillus in the pericardial fluid, in another staphylococci were grown from both pericardial and cerebro-spinal fluid. Considering that the changes found in the nerve elements were due in the main to the exhaustion from lack of nutrition, loss of sleep, and constant activity on the part of the patient, the author sought to reproduce the same conditions in a number of rats, by whirling them around in the wheel of a squirrel cage, for various periods, starving them, etc. Upon the examination of the brains of these animals, he found changes exactly similar in kind to those observed in the cases of acute delirium, and varying in degree with the extent of exhaustion produced. He concludes that the cell changes found, are only extreme exaggerations of those taking place during normal activity. These physiological changes are normally repaired during alternating periods of rest, while in cases in which there is no rest, and imperfect nutrition, exhaustion becomes extreme, and repair is no longer possible. The article is illustrated by a number of reproductions of photomicrographs.

4. *Insane in Penal Institutions*.—A plea for the recognition of the criminal insane, which the author thinks could be accomplished by (1) the establishment in each state of institutions for insane criminals, and defectives showing criminal tendencies; (2) the examination by competent alienists of those accused of crime, to assist the judge in the disposition of the case; (3) the appointment of a competent alienist on the staff of each penal institution, or, if this be impracticable, of a state alienist to visit each institution of this sort. A careful record of each prisoner showing mental idiosyncrasy should be required to be kept for the inspection of such officer.

5. *Fluctuation of Insanity in Connecticut*.—A study of 7,657 cases of insanity in the Connecticut Hospital for the Insane during a period of 32 years, from which the author draws the following conclusions: (1)

The ratio of the insane to the general population is much larger than usually estimated, but the increase in proportion to population is much smaller than is usually supposed; (2) the foreign-born element shows a much higher percentage than the native; (3) the cities show a much larger percentage than the counties, but in the latter insanity is increasing; (4) of nationalities, the Irish show the highest, the Germans the next, and the natives the lowest percentage of insanity.

6. *Study of a Non-Dementing Psychosis by Laboratory Methods.*—“Summary.” “The history of a case of chronic manic depressive insanity. First attack, one of mild depression; second, of depression and katatonia; period of twelve years of paranoid condition; third attack, one of acute mania, stupor followed by chronic mania, which is present condition, having now lasted six years.” A study of the psychical condition of this patient by Prof. Cattell, at three different intervals extending over three years shows practically no further mental impairment at the end of this time, the patient's condition remaining at a standstill. Studying the anatomical and psychological localization of the disorder, the author concludes that: The cortical language areas are not directly impaired. The sensory motor zone and perception zone for appreciation of form and contour are practically normal. The sensory zones of vision, hearing, smell and taste are normal, though appreciation of food and drink are rather automatic, and sexual appetite is gone. The association tracts by which language is coördinated in its responses are gone, as are those which modify motor acts to definite purposes. In voluntary mental activity there is play of ideas, but they cannot be directed or correlated. Anatomically there would seem to be disorder of the association tracts, though a definite localization the author does not attempt to make.

7. *Status Epilepticus* (Continued article).

8. *Organization of Assistant Physicians.*—A plea for an organization of the assistant physicians in the Ohio State Hospitals.

9. *Clinic of Babinski.*—A résumé of Babinski's observations on voltaic vertigo, and his discovery that in cases where the voltaic ear reaction was abnormal, and deafness and ear noises were present, the abnormal manifestations were removed, and hearing was improved by withdrawal, after lumbar puncture, of 10 to 15 c.c. of cerebro-spinal fluid. The author thinks that the use of lumbar puncture both for diagnosis of the cause of vertigo, and for treatment of chronic deafness, is likely to prove an important addition to our resources.

ALLEN (Trenton).

(Vol. 60, 1904, No. 3.)

1. Anatomical Facts and Clinical Varieties of Traumatic Insanity. A. MEYER.
2. Apparent Recovery in Case of Paranoia. R. DEWEY.
3. Notes on Malignant Growths in the Insane. J. R. KNAPP.
4. A Report of a Case of Myoclonus Epilepsy. I. H. NEFF.
5. The Present Status of Paranoia. W. McDONALD.
6. Korsakoff's Psychosis. Report of Cases. H. W. MILLER.
7. Paranoid Dementia. C. W. PAGE.

1. *Traumatic Insanity.*—At the start the author announces that in his treatment of the subject he limits himself to trauma affecting the brain, both the direct injury to this organ and the emotional effect being considered. An injury may have as its physical result direct focal or more or less diffuse destruction of nerve tissue, followed by reaction showing as its immediate effect edema, and as a later result, formation of scar tissue. It may also produce “diffuse commotions in which the psychic elements preponderate, including the remote reactive results of exaggeration of vasomotor and emotional responsiveness.” The arrangement of



the cranial cavity tends to the production of the greatest effect at the point of impact or opposite it, also at places where unevenness of the base or the presence of the tentorium leads to focal contusions. For instance, in patients who strike their heads on falling in fits, at the tips of the temporal, and bases of the frontal lobes, and in the central grey matter of the third and fourth ventricles.

The swelling of the injured tissues best explains the rapid rise of intracranial pressure, and in a general way the author thinks a patient with extensive destruction of the skull has a better immediate chance to survive the injury. He next gives more or less detailed histories of 31 cases, with discussions. In 7 of these cases an autopsy was obtained, and in one he was able to inspect the brain at the time of a trephining operation. Into the details of these cases it is impossible to enter here. The author makes a general analysis as follows:

The question of the frequency of traumatic insanity is not easy to establish, as statistics of state hospitals are not as reliable as they should be. The series of cases presented represents the material of about 3,000 admissions during six years. The author thinks that some cases were probably not included, so that 1 per cent. is a safe estimate. Other American authors have found the percentage higher. Of his 31 cases he finds that in 23, mental symptoms followed a more or less profound trauma to the head. In 9 of these fracture of the base was very probable if not certain. There was fracture or lesion of the convexity in five, more or less severe general concussion in seven, pistol shot wound in the temple in one, and trauma from unknown cause (shown by a frontal scar) in one case. Of the remaining cases, three died before showing definite mental disease referable to the trauma, two were cases of tumor, and in three the effects of the accident were mainly psychic. Is there a relationship between special types of injury and the form of psychosis? Lesions of, or over, the convexity led to epileptic or epileptiform disorders in 3, probably in 4 cases. Diffuse concussions and basal fractures led (1) to initial delirium in 3 cases (as did also a pistol shot wound of the orbit); (2) to a paranoid development (delusional state), also very frequently (3) to intercurrent episodes of a more or less epileptiform character, spontaneous or excited by such causes as alcohol, grippe, etc. Where dementia resulted, it was due to epilepsy, alcoholism, or arteriosclerosis, or to early age and subsequent defective development. While we cannot speak of a special traumatic insanity, there are some characteristic traits. "The primary disorders, the 'protracted deliria' show beside partial disorientation usually variations between clearness and haziness of sensorium, a certain prominence of fabrications of dreamlike situations— . . . more or less coherent according to the sensorium, further, difficulty of ready remembrance and of calculation. Alcoholism seems to bring on epileptoid episodes, or at least mental states also seen (though not as frequently) in cases of non-traumatic epilepsy. The paranoiac forms are apt to have the difficulty in calculation, inaccuracy of memory and of appreciation of time, and at times a feeling of dizziness, with episodes of fabrication, etc., or at least a certain imperfection in the systematization." In the majority of the cases, other etiological factors seem to coincide with the trauma and the following questions suggest themselves: "Would the patient have developed the mental disorder without the injury? Does the mental disorder show any typical traits speaking for trauma? To what extent do the forms depend on difference of make up, and to what extent on differences of the form of damage?" In answering these questions the author thinks there cannot be too much reserve. We have no direct measure of the damage of a concussion. He suggests that in examining traumatic cases there are five directions in which clinical studies can

be pushed to greater precision and usefulness. They are: (1) By making an inventory of the patient's mental possibilities (Attempted by Rieger; time consuming, but a step towards a safe method); (2) by studying the vasomotor neurosis of Friedman; (3) by examination for the "explosive diathesis" of Kaplan; (4) by investigation of all degrees of haziness or dream states, and hysteriform or epileptoid absences; (5) by careful consideration of all etiological factors, as (a) insanity in the family, and its types, (b) constitutional peculiarities and predispositions, (c) alcoholism, syphilis, exposures and excesses, (d) extent of the injury with its immediate and after effects, and especially the extent of the mental shock, (e) influences found to aggravate the symptoms, or to elicit post-traumatic reactions, such as litigation and invalidism and its consequences.

Summarizing his experience concerning clinical distinctions, while he would discourage the hope for a strict classification, the author suggests the following as salient types: "(1) The direct post-traumatic deliria with the following subdivisions: (a) Preëminently febrile reactions; (b) the delirium nervosum of Dupuytren, not differing from the deliria after operations, injuries, etc.; (c) the delirium of slow solution of coma with or without alcoholic basis; (d) forms of protracted deliria usually with numerous fabulations, etc. (with or without alcoholic or senile basis).

2. The post-traumatic constitution: (a) Types with mere facilitation of the reaction to alcohol, grippe, etc.; (b) types with vasomotor-neurosis; (c) types with explosive diathesis; (d) types with hysteroid or epileptoid episodes, with or without convulsions (such as most reflex psychoses); (e) types of paranoiac development.

3. The traumatic defect conditions: (a) Primary defects allied to aphasia; (b) secondary deterioration in connection with epilepsy; (c) terminal deterioration due to progressive alterations of the primarily injured parts, with or without arteriosclerosis.

4. Psychoses in which trauma is merely a contributory factor: (a) General paralysis, with or without traumatic stigmata; (b) manic-depressive and other transitory psychoses, catatonic deterioration and paranoiac conditions, with or without traumatic stigmata.

5. Traumatic psychoses from injury not directly affecting the head." The question of surgical intervention should always be considered if any localization of the irritating factor is possible.

The author's post-mortem findings were, in the recent cases, clots and bruising of the brain, with or without fracture; in the old cases, scar and membrane formation, localized losses of brain substance, and development of spicules or plates of bone. In case 5 (of gunshot wound through the orbit) a very careful study of secondary degenerations was made, by the Marchi method. The paper presents a careful and comprehensive study of the subject, and but scant justice can be done it in the space available here.

2. *Apparent Recovery in Paranoia*.—Description of the case of a man of 40 years of age, who developed apparently systematized delusions of persecution, together with some hypochondriacal ideas, and probably hallucinations of hearing and of smell, from all of which he recovered at the end of a year and a half. The author regards the case as one of paranoia, but in view of its course and outcome, some doubt as to the diagnosis seems permissible.

3. *Malignant Growths in the Insane*.—A study of cases dying from malignant growths in the Manhattan State Hospital East (Male Dept.) during the eight years ending in 1896, a total of 31 male patients. Including in the estimate both male and female departments, there was in every



111 deaths one from malignant growth, the women being twice as frequently affected as the men. For the men alone the proportion was 1 case to 217 deaths, or 1 case of malignant growth to 626 patients under treatment. These figures the author finds are twice as great as those for the adult population at large, and four times those for the general population. Of his 31 cases 22 were of carcinoma, and 9 of sarcoma. Of the latter 5 were of sarcoma of the brain. A short detailed description follows. In the 5 cases of sarcoma of the brain, the insanity was of short duration (three and a half months to two and a quarter years), and was apparently due directly to the neoplasm. They were characterized in general by depression, suicidal tendency, delusions of suspicion, and stuporous states passing into dementia. The author thinks that cancer may be possibly in some way connected with loss of "inhibitory control" and changes in metabolism, hence its greater frequency in the insane, and suggests that this may possibly open up a new line of inquiry.

4. *Myoclonus Epilepsy*.—Preceded by sketches from the asylum records of three other cases which he thinks should also be placed in the group of "myoclonic disturbances in epilepsy," the author gives the following history: A man of twenty years of age, an imbecile with criminal tendencies, springing from a neurotic family, and showing stigmata of degeneration, at the age of fourteen years, after the ingestion of about a pint of whiskey, had an attack of acute gastritis, and vomited persistently for 72 hours. Immediately after this there was an attack of "clonic spasms" in the legs, lasting two days. He continued to drink, and three months later had his first typical epileptic grand mal attack. During the first year after this, the myoclonic spasms occurred about once a month, the epileptic fits about once in six weeks. His habits remained bad, both myoclonic attacks and fits became more frequent and the former had spread to arms, back and face, until at the time of his admission he was free from spasm only a few days in the week. Upon examination the author found marked disorder of equilibration and gait. Owing to the violence of the spasms in the leg muscles the patient was frequently thrown to the floor. The muscles of the face, neck, arm and abdomen were also involved, and speech was at times jerky, but the laryngeal muscles did not seem to be affected. The contractions were short and sharp, but not symmetrical. During fifteen months he had 25 grand mal attacks, and frequent myoclonus spasms, occurring entirely independently. The condition persists, but the frequency of the attacks has diminished under bromides.

5. *Paranoia*.—The author takes up Kræpelin's criteria of paranoia, and subjects them to analysis. The condition with which paranoia is most likely to be confounded is the paranoid form of dementia præcox. He lays special stress upon the importance of getting a complete history of the patient's whole life, if possible, and shows how easily the personal ideas and preconceived notions of the examiner may lead him to fill in certain gaps, and to decide that systematized delusions are present, when such is not the case. Summing up he comes to the following conclusions: (1) There are patients with paranoid characteristics, who, because of gross weakmindedness, and catatonic symptoms, are easily recognized as subjects of dementia præcox; (2) others less weakminded have never shown catatonia, but may be classed as precocious demented on account of: (a) More or less acute onset not of the type called "shifting of the standpoint"; (b) consciousness at some time or other has been clouded or disturbed as an essential part of the psychosis, and not on account of delusional or other excitement; (c) prominence of hallucinations; (d) delusions not really systematized; (e) delusions not fixed; (f) gross incoherence of thought has been evident either in speaking or in writing;



(g) analysis of conduct and behaviour discovers a degree of mental impairment inconsistent with paranoia; (3) "There is a class of patients in which paranoid delusions occur in the natural course of development and because of defective organization." Original paranoiacs, or paranoid high grade imbeciles; (4) alcoholic insanity may take a paranoid form; (5) paranoid symptoms occur in senile dementia, general paresis, manic-depressive insanity and melancholia, but the other characteristics of these psychoses should make the diagnosis clear; (6) a study of his own patients and of the classical cases of literature does not show a case which he thinks could not with greater appropriateness be classed under one of the above heads than be called paranoia.

6. *Korsakoff's Psychosis*.—After reviewing the history, symptoms and pathology of this disease the author describes in detail four cases of whose history the following is a summary: *Case 1*. Female, 51 years old, non-alcoholic. Immediately after an attack of typhoid fever, symptoms of multiple neuritis, together with insomnia and delirium, with hallucinations and illusions, appeared. Her memory for recent events became faulty, and conception of time and place was much confused. Upon admission to the hospital she was bedridden and there was atrophy of the leg and arm muscles, with altered electrical reactions. The troubles of memory persisted, and she was entirely disoriented and given to fabrication. No improvement. Death about six and a half months after the beginning of the attack, from pulmonary embolism and sepsis from a pelvic abscess. Examination showed, neuritis of a number of nerves, changed in the cells of the anterior horns, and degeneration in the posterior columns of the cord (by Marchi). *Case 2*. Male, 51 years old, alcoholic. After an attack of delirium tremens, paresis and peculiar sensations in the legs, followed by loss of memory, disorientation, and tendency to fabricate. Upon admission to the hospital no signs of the multiple neuritis remained. He has improved in his general condition, but memory remains defective. *Case 3*. Male, 37 years old, alcoholic. Never had delirium tremens, but history as to the beginning of the psychosis is defective. Undoubted symptoms of neuritis in the legs, with slight weakness in the arms, defect of memory, disorientation, and pseudo-reminiscences. Some improvement in orientation, but he remains in the hospital, with memory defective for recents and for time. *Case 4*. Male, 40 years old, alcoholic, had delirium tremens. No history as to the beginning of his attack. No definite symptoms of neuritis, but he tired easily and could not walk any distance. Loss of memory for recent events, disorientation and fabrication. Remains in the hospital improved in physical condition, but mentally unchanged.

7. *Paranoid Dementia*.—By this term the author understands the paranoid form of dementia præcox. This paper is interesting as showing the great change in the conception of some of the insanities, which the present dominating influence of Kræpelin has brought about, at any rate in some quarters. From the adoption of Kræpelin's classification in 1898, to July, 1901, there were admitted to the Connecticut Hospital for the Insane 1,210 cases of insanity. Of these 56 cases were diagnosed as paranoid dementia. From his study of these the author recognizes two groups of cases, both presenting delusions of grandeur and of persecution unsystematized and frequently absurd, with auditory hallucinations, and mental enfeeblement progressing steadily to dementia. The second form differs from the first chiefly in the slower progress of the disease, complete dementia not being reached for years. He thinks that with proper investigation of all the features of the case, the diagnosis is generally possible at the start. Among the 56 cases considered 10 were readmissions. The original diagnoses in these cases (made prior to 1898) furnish

the point of the paper. They were as follows: Acute mania 3 cases, acute melancholia 1 case, chronic mania 1 case, chronic melancholia 2 cases, puerperal mania 1 case, paranoia 2 cases.

ALLEN (Trenton).

#### MISCELLANY

ARTERIOSCLEROSIS AND THE OPTIC NERVE. Charles S. Bull (Medical News, Oct. 31, 1903).

The author calls attention to the influence of arterial degeneration upon the vision. There are three types of arteriosclerosis: The cardiac with early symptoms of heart insufficiency; the renal type in which kidneys early become prominent, and the diffuse type in which rupture of the arteries of the brain, is apt to be an early symptom. In the renal type, changes in the retina are seen early, and in the diffuse type, the eye symptoms are apt to be of help in the diagnosis of the condition. In degenerative disease, as tabes, early eye symptoms are often warnings of the process long before any other symptoms occur. When hardening of the arteries occurs, it is not unusual to find central defects of vision due to the fact that the hard artery presses upon the optic nerve, causing loss of function in its fibers. Retro bulbar degeneration may even take place in these cases. The only satisfactory treatment is to improve the general condition, and as far as possible prevent the progress of the arterial degeneration.

W. B. NOYES.

ACUTE NON-SUPPURATIVE ENCEPHALITIS. Harlow Nooks (Medical News, Aug. 9, 1903).

Cases of acute non-suppurative encephalitis are rare, and only exceptionally recognized. A considerable number of the cases recover and are thought to be hysteria. The etiology should include not only bacterial, but other toxins and also traumatism. The lesions of acute non-suppurative cerebritis are varied. (1) Cerebrospinal meningitis, probably secondary to cerebritis and of a "cellular type." (2) General non-septic cerebritis affecting all parts of the cerebrum, but most marked in the cortex and particularly so in that of the motor areas. The disease is characterized pathologically by perivascular infiltration, dilatation of lymph spaces, and by areas of neuroglial proliferation. (3) Degeneration of many of the ganglion cells of the cortex. (4) Degeneration of many of the fibers arising from the large pyramidal cells of the cortex. (5) Diffuse degeneration affecting many of the fibers passing through both internal capsules. (6) Similar changes in the cerebellum. (7) Degeneration of many of the tracts of the pons and medulla. (8) Degeneration of the chief descending tracts of the spinal cord. (9) Slight changes of the cytoplasm of the ganglion cells of the anterior horns of the spinal cord, probably secondary. The symptoms caused these conditions in the case reported had been coma, stertorous respiration, no muscular rigidity, absent patella reflexes, the unconsciousness persisting for three weeks. Autopsy showed no gross organic lesions.

W. B. NOYES.

## Book Reviews

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HUMAN PERSONALITY AND ITS SURVIVAL OF BODILY DEATH. By FREDERICK W. H. MYERS. In two volumes. Longmans, Green & Company, New York, 1903.

Although this work has been for some time before the public, no opportunity to review it in these pages has heretofore presented itself. But to pass it over in silence would mean to ignore not only an epoch-making addition to the results of psychological research, but also to overlook a contribution to that phase of medical science concerned with psychoses and their related phenomena which is of the highest value and importance. It is, however, absolutely out of the question to set forth in the brief space here allotted anything beyond the merest outline of the plan and scope of the investigations and conclusions contained in the two bulky volumes, from which not a single page could have been omitted without detriment to the exposition of the theme.

It is the author's contention that while man has applied the methods of scientific investigation to every other natural phenomenon which has presented itself to him, the one question which transcends all others in interest, that is, whether human personality survives bodily dissolution, has always been considered outside of the realm of scientific research, and left wholly shrouded in the mists of fanaticism and superstition. To bring it within the realm of science, to set aside all considerations of tradition and religion, to apply to the investigation of this all-absorbing subject the same methods of dispassionate inquiry that have for centuries been employed in observing and classifying the movements of the heavenly bodies or studying the development of plant and animal organism, is the task which the author has set for himself, and to the noble fulfilment of which all who read these volumes can abundantly testify.

The problem of personality is first discussed, and after a careful analysis of existing evidence through many steps, each thoroughly elaborated, the author brings us to the conclusion that there are faculties in human personality which, although seldom taken into consideration, are yet in many ways superior to those faculties which usually make themselves apparent through the physical senses. He distinguishes these two manifestations of personality by the terms *superliminal*, that which is usually recognized by science and psychology as the self or ego, and *subliminal*, that of which we have knowledge through such manifestations as automatic writing, crystal gazing, speaking trance, hypnotism, or inspiration and genius. He proceeds to give a close analysis to each of these manifestations as tending to the establishment of the existence of this subliminal personality, and the chapters devoted to Sleep, Genius and Hypnotism are well worthy of consideration in separate articles.

From the establishment of this subliminal personality he takes up the next step in his line of investigation, namely, whether this personality can survive the extinction of the physical activities which we are accustomed to term *death*. To prove that this question can be answered in the affirmative is the avowed object of the gigantic labors of which this work is the result. After considering the powers of the subliminal self as manifested during life, especially in relation to telepathy and clairvoyance, it is not a difficult step to those manifested after physical life has ceased to exist. On these points the author presents a mass of evidence, laying stress on the powers of self-projection manifested by the subliminal consciousness of the living human being, and demonstrating the reasonableness of its continuing able to maintain its functions after bodily dissolution.



It is, of course, to be taken for granted that many will remain unconvinced, either by the weight of Dr. Myers' evidence or the logical and scientific conclusions he deduces from it, but even the most skeptical or conservative reader cannot fail to recognize the great value and scientific importance of such a work, or to appreciate the extent of the fascinating field of speculation which he has thrown open for the exploration of inquiring humanity. POPE.

PHYSIOLOGISCHE UND KLINISCHE UNTERSUCHUNGEN ÜBER DAS GEHIRN. GESSAMMELTE ABHANDLUNGEN VON D. EDOURD HITZIG. August Hirschwald, Berlin. G. E. Stechert, New York. \$4.00.

Readers of the first edition of Hitzig's physiological investigations of brain localization will be pleased to find in this work a second edition of the earlier studies combined with an entirely new series—the result of some twenty years of investigation—and largely reprinted from the recent issues of the *Archiv für Psychiatrie*.

In this noteworthy collection, representing Hitzig's work from the time of his initial electrical experiments in 1870 up to within very recent time, when increasing failure of eyesight has forced him from the microscopical desk, we have one of the most thorough and profound contributions to cerebral localization that has ever been published.

It is impossible to outline in a short book notice the scope of the investigations here represented in a volume of 620 pages. The work well represents a busy life spent in original investigation. Only a small fraction of Hitzig's work is to be found in the present volume, but it represents his early and most recent work on the physiology of the brain as investigated from both the physiological and pathological standpoints. It should find a place in the library of every working neurologist or alienist.

JELLIFFE.

MODERN SPIRITUALISM. A History and a Criticism. By FRANK PODMORE. In two volumes. Imported by Charles Scribner's Sons, New York.

A work which takes on an added interest, when considered in connection with that of Dr. Myers, is *Modern Spiritualism*, by Frank Podmore, an English book imported by Scribner's Sons. Mr. Podmore calls his work a history and criticism, whereas that of Dr. Myers is specifically a scientific investigation. Therefore the two authors, although considering subjects closely allied, if not indeed practically identical, approach their theme from widely differing standpoints and reach conclusions even more remote from each other.

Mr. Podmore's work bears throughout the stamp of the most careful, painstaking examination and scientific thoroughness. The first volume opens with a consideration of the pre-existent beliefs which were the progenitors of the modern movement, and then takes up a detailed study of the individuals who have left the stamp of their personality upon the history of spiritualism, considered as a religious propaganda. In connection with this stage of the development of his theme he dwells at length on the various phases of clairvoyance, "speaking with tongues" and prophecy, and then passes on to a careful analysis of the physical phenomena, such as rapping, slate writing, table tipping, and so forth, on which most of the belief in spirit manifestation is based. The relation is minute, at times almost tiresomely detailed, and the author is very evidently trying to present a perfectly judicial and unprejudiced statement of the evidence; but the reader early comes to feel what is evidently the view of the writer, that every relation, all things being considered, must be docketed with the endorsement "not proven."

Mr. Podmore, however, does not assert that the position occupied

by Dr. Myers is entirely untenable. On the contrary, he makes particular mention of the views of the author of *Human Personality*, at the time he writes still unpublished, and remarks that the strength of his argument lies chiefly in the fact "that it makes the ordinary Spiritualist argument superfluous." He then goes on to say, however, that as it is not "a mere philosophical speculation founded on assumptions which are incapable of verification, but a scientific hypothesis based on the interpretation of certain alleged facts," it is by the validity of these facts that the hypothesis must stand or fall, and he concludes that "the evidence seems at present far from sufficient to establish, hardly sufficient, perhaps, to justify the speculation."

Taken as a whole, while the work presents but little that is new, either of facts or criticism, it places a comprehensive view of the entire subject of alleged spirit manifestation, set forth in a masterly manner by a keen thinker and profound student, within easy reach, and makes accessible to the lay reader much that has heretofore been hard to obtain. It is, moreover, an eminently readable and interesting book, although neither puerile nor "popular," and must be a contribution of distinct value to any psychological or general library.

POPE.

SAMMLUNG VON RICHTLICHEN GUTACHTEN AUS DER PSYCHIATRISCHEN KLINIK DER KONIGL-CHARITÉ ZU BERLIN. Prof. D. M. KOEPPEN, I Assistenten der Psychiatrischen Klinik. S. Karger, Berlin. G. E. Stechert, New York. \$3.50.

To those who have followed Köppen's excellent work in the Charité Annalen from year to year the present volume will come with special pleasure, bringing together, as it does, a series of observations on psychiatric science that are worthy of wide dissemination.

After a brief introduction the author presents a short statistical summary of the work of the Charité Psychiatric clinic for the ten years 1891-1901, some 317 patients having come under observation at that time—not a large number, but a rich mine of observation, nevertheless.

Following this, observations on eleven patients who suffered from Dementia are presented. Five instances of modified personality in Epilepsy are then reported at length. In a third series eight cases of Paranoia are analyzed. Three patients with Cerebral Syphilis and three "Degenerates" are described in sections 4 and 5. The remaining sections deal with Sexual Perversions, Pathological Liars, Alcoholism, Puerperal Psychoses and two cases of uncertain diagnosis.

The histories given are very full and satisfactory. Such studies seem to be well worth while. They offer some light in the uncertain way of the insanities, and the student of psychiatry cannot but help to be benefited thereby.

JELLIFFE.

VERSUCH EINER PSYCHOPHYSIOLOGISCHEN DARSTELLUNG DES BEWUSSTSEINS, ZUGLEICH EIN BEITRAG ZUR LEHRE VON DER FUNCTION DER GROSSHIRNRINDE. Von Dr. E. STORCH. Verlag von S. Karger, Berlin.

This work is an attempt to analyze consciousness and to show in the course of this analysis the necessary constitution of the brain, the physical substratum of consciousness. The author is quite abstruse in parts, with a tendency to be metaphysical, finding it necessary to make use of many diagrams to illustrate his ideas, thus the work is difficult of abstraction. The common terms of psychology are used, but appear to be inadequate at times, and we find such terms as the "pathopsyché" and the "myopsyché," which are used to designate principle elements of consciousness and the elements of consciousness accompanying muscular contraction respectively. The author offers his explanations only as provisional, but as tending to show the harmony between conceptions of brain anatomy on the one hand and psychological analysis on the other.

WHITE.

## News and Notes

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Dr. A. A. Liebeault, the most influential of the Nancy school of hypnotism, died Feb. 17, 1904. He was born in Favieres in 1823. He graduated in Strassburg in 1844, taking his medical degree in 1850.

Dr. Gilles de la Tourette died at the age of 48 recently, in an institution at Lausanne.

Professor Hermann Emminghaus died on Feb. 17, 1904, aged 60 years. Professor Emminghaus was first called to Würzburg in 1873. In 1880 he was called to Dorpat, and in 1887 took charge of the Psychiatric Clinic at Freiberg.

Dr. E. Meyer, of Kiel, has been appointed Professor of Psychiatry and Nervous Disease at Königsberg, taking Professor Bonhoffer's recently vacated chair. Dr. Raecke, of Frankfurt, is called as Chief Physician to Kiel in Dr. Meyers' place.

Professor William His, of Leipzig, died in the beginning of May.

Prof. Dr. Siemerling, of Kiel, has had a call to the Psychiatric Clinic at Bonn.

**RESOLUTIONS ON THE DEATH OF DR. F. SAVARY PEARCE.**—The Section on Nervous and Mental Diseases of the American Medical Association desires to give fitting expression to its sense of sorrow and loss in the sudden and unexpected death of its Chairman Elect for this meeting, Dr. F. Savary Pearce.

For many years Dr. Pearce was a regular attendant upon the meetings of this Section, and a frequent and valued contributor to its proceedings.

During three years he served with great efficiency as Secretary of the Section, and by his wise and untiring efforts he greatly expanded its influence.

Graduating from the medical department of the University of Pennsylvania in 1891, Dr. Pearce in these earlier years of his professional career filled with great credit to himself a number of important hospital positions. He early devoted himself to neurology as a special study, and made from time to time many valuable contributions to the literature of this branch of medicine.

In 1898 he was elected Professor of Nervous Diseases in the Medico Chirurgical College of Philadelphia, and about the same time became one of the neurologists to the Philadelphia Hospital, in both of which positions his work, as that of his entire professional life, was characterized by enthusiasm, zeal and ability.

A few months before his death he published a text-book on nerve diseases, and was engaged in preparing one of like scope on insanity.

Dr. Pearce was personally a man of genial and kindly spirit, ardent and faithful in his friendships and greatly beloved by those whose duties brought them into close contact with him.

In the death of Dr. Pearce the American Medical Association, and especially this Section, has sustained a serious loss, and while yielding obedience to Divine command, we would extend to the relatives and friends of our esteemed associate our appreciation of his worth and our profound sympathy with them in their sorrow.

WILLIAM J. HERDMAN,  
CHAS. K. MILLS,  
RICHARD DEWEY,  
*Committee.*



THE  
**Journal**  
OF  
**Nervous and Mental Disease**

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**Original Articles**

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REMARKS ON THE SURGICAL TREATMENT OF OBSTETRICAL PARALYSIS.

BY ROYAL WHITMAN, M.D.,  
OF NEW YORK.

From the clinical standpoint cases of obstetrical paralysis may be divided into three classes :

1st. Those cases seen soon after birth, in which the paralysis may be combined with other, and what is often considered more serious injury, such as fracture.

2d. The cases brought for treatment during the latter part of the first year, when it has become apparent that complete recovery is doubtful.

3d. The cases seen in childhood and adolescence when treatment is sought in the hope that the disabled arm may be made more useful.

In the first class there is often sensitiveness to pressure about the shoulder and evident pain on movement of the arm. The paralysis may be of typical distribution or more widespread, so that the fingers are habitually flexed, or powerless..

In the second class, in which recovery has been incomplete, the accommodative contraction of muscles and other tissues limiting motion in the directions opposed to the habitual attitude, induced by the paralysis, is usually well marked.

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<sup>1</sup> Read at a meeting of the New York Neurological Society, April 5, 1904.

In the third class, if the paralysis has been of the typical form in which the deltoid, the flexors of the forearm and supinators are involved, there is often fixed inward rotation of the extremity and subluxation of the head of the humerus. If, however, as is not unusual in cases of this type, the paralysis is more general in its distribution, the subluxation, which is dependent on irregular muscular action is absent. The nutritive changes, induced directly by the injury and secondarily by disuse of normal function, evident in the atrophy and loss of growth of the limb may be extreme.

The treatment of the injury in early infancy during the stage of repair, when movement causes pain, is obviously rest, and the infant's arm should be fixed to the chest with the fingers extended.

Gentle massage, flexion, extension and supination of the forearm, manipulation of the fingers and the like should be employed, and as soon as the local sensitiveness has subsided the same treatment should be applied at the shoulder.

In the second class, in which contractions have already appeared, manipulation and forced movements at each joint with the aim of regaining the entire range of normal motion, is the first essential, combined with systematic exercises as far as is compatible with the intelligence of the patient. For by such training, as is well known, the disability due to incomplete paralysis from any cause may be materially lessened.

After how long a time recovery from paralysis, due to injury of the nerve trunks is possible, it is difficult to say. I have seen it delayed nearly a year after direct injury to the sciatic nerve, and, as is well known, the paralysis caused by forcible manipulation in the reduction of congenital dislocation of the hip may persist for many months.

It is during this period of repair of lesions of the nervous system of whatever type that progressive distortions occur, of which the indications may be seen within a very short time after the onset of the paralysis. These secondary distortions in themselves prevent recovery, and it is never possible to estimate the degree of irremediable injury to the nervous apparatus until they are overcome.

In orthopedic practice, for example, after rectification of de-

formity of long standing, due to anterior poliomyelitis, in which contractions have been overcome and over-stretched muscles have been relaxed and the part enabled by proper protection to take on improved function, one often sees remarkable gain in power even in those muscles whose function has long been dormant and apparently hopelessly lost. It is the improvement due to removal of deformity, to the improved function that it permits, and to the education of the disabled apparatus that one must always consider before estimating the value of an operation as simple as tendon transplantation. It is evident, therefore, that the value of the more problematical operation of nerve anastomosis can only be estimated in the absence of contractions, and when sufficient time has elapsed to exclude the possibility of natural repair. It may be suggested in this connection that direct union of the injured nerves might be feasible if the operation were performed in infancy, and operative exploration with this aim might be considered in suitable cases.

The most important of the distortions due to obstetrical paralysis is the subluxation of the humerus in a direction downward and backward. In such cases the arm is slightly abducted, practically ankylosed at the shoulder and rotated inward so that the ulnar border of the hand may look forward. This attitude of habitual pronation, originally symptomatic of paralysis, has become exaggerated and confirmed by the secondary displacement, a displacement which even in the absence of paralysis would cause very serious disability, and in these cases it is often the most important obstacle to improved function. Cases of this character, if well marked, are often classified as congenital rather than acquired dislocation at the shoulder. True congenital misplacement may be present at birth, or displacement and injury to the nerves may occur simultaneously at birth. Of this I have seen one example during the past year, but that the luxation is in most instances secondary to habitual posture is indicated by the fact that although it is a common accompaniment of the disability in childhood and adolescence, it is very uncommon in the cases seen soon after birth. For a number of years I have examined all the cases of obstetrical paralysis coming under my observation at the Hospital for Ruptured and Crippled, and in but the one instance mentioned has actual subluxation been found while the infant



was in arms, although as he been stated, the contractions that oppose normal movements are often well marked.

It is in the reduction of the displacement of the humerus which should be the essential preliminary to any other treatment that I am particularly interested. The method that I have employed for a number of years in the treatment of this displacement, both congenital and acquired, has been somewhat similar to that of the reduction of congenital dislocation of the hip.

The patient, being anesthetized, the contractions are overcome by leverage of the arm, first in an elevated and extended attitude, the aim being to gradually force the head of the humerus forward. It is then pushed upward by lowering the arm, and finally by forcibly adducting it while the scapula is fixed as well as may be. The anterior part of the capsule is contracted and resistant, but as the head of the bone is usually atrophied, sufficient space may be gained by the manipulation to reduce the displacement at one sitting, but with older patients, or if the deformity is more extreme, it is better to divide the operations into two or more sittings. When the displacement has been reduced other contractions are stretched, for example, the forearm is forcibly supinated over and over again, and extended on the arm. The limb is then fixed, usually by adhesive plaster, and a plaster bandage with the elbow behind the thorax, and with the forearm, if practicable, in supination across the chest. This fixation is continued for a number of weeks, or months, in order to guard against redisplacement, and to permit the accommodative changes in the tissues about the joint. When it is removed, daily, more or less forcible manipulation must be carried out with the aim of preventing the tendency toward recurrence of the former attitude.

The usual routine in these passive movements is as follows: The scapula being fixed by one hand, the elbow is drawn behind the plane of the body with the other, in order to force the head of the humerus forward and upward. It is then adducted, and finally it is rotated outward over and over again, with the aim of increasing the capacity of the articulation. Extension of the forearm, supination and the like are employed to oppose muscular contraction, and such passive movements should be supplemented, of course, by the active efforts of the patient.

Not infrequently in these cases the initial injury of the nerve

trunks has been in great degree repaired, and when displacement and the secondary contractions which have caused the persistent disability have been removed, function is surprisingly improved under educational training, even to the extent of what may be called a practical cure. If, however, the paralysis of the deltoid muscle is complete, one must aim to hold the head of the humerus in the new position and in outward rotation until it becomes, by the contraction of the tissues, securely fixed there, or, if necessary, the attitude may be assured by arthrodesis, for in that event even when the ability to supinate is lost the radial border of the hand will look forward in place of the ulnar border, and this in itself is a great improvement.

If the injury to the brachial plexus has been more extensive the subluxation of the humerus, which is due to irregular muscular action, is not present, but the hand may be distorted and useless. In such cases operative treatment may be of value in lessening the disability.

Two cases of this character treated during the present year have been shown to-night.

The first patient, a girl 14 years of age, presented, on admission to the Hospital for Ruptured and Crippled, the following appearance: The right arm, as a result of injury at birth, was three and a half inches shorter than its fellow, the thumb was flexed on the palm and the fingers were clasped on it. There was slight power of flexion of the fingers but none of extension. The hand was drawn back into dorsal flexion, partly by the one active muscle, the extensor carpi radialis longior, and partly by the force of gravity, as the forearm was semi-flexed and supinated. There was slight power in part of the biceps, but apparently none in the deltoid. There was no subluxation. The obvious treatment in this case was to overcome the distortion of the hand. This was accomplished by arthrodesis of the metacarpo-phalangeal joint of the thumb. The same operation was performed at the wrist, and the active and deforming muscle was removed from its attachment and sewed to the extensor tendon of the fingers. The hand was fixed for a time in a plaster bandage, which was afterwards replaced by a removable appliance of lighter material. Under the treatment there has been a very great gain in power in the arm; there is fair power in flexion and a slight

power to extend the fingers and appose the thumb. The hand is symmetrical, and even without support it is useful for prehension.

In the second case, that of a girl of 18, there had been originally paralysis of both arms, but on the left side there had



Fig. 1. The habitual attitude before operation. Case 1.

been a gradual gain in power, even during adolescence, as is instanced by the fact that within a few years she had been able to arrange her hair. The paralysis in this case and the attitude were similar to that which has been described. The deformity was overcome after arthrodesis at the wrist, by force and by use of a support there has been a considerable gain in function as well as the improvement in appearance.

This class of cases is, of course, far less important than the others and the treatment has only been mentioned incidentally.

The purpose of this paper has been to call attention to the importance of preventing secondary distortion after obstetrical



paralysis by systematic passive movements at all the joints of the disabled member in the directions opposed by the muscular adaptation that follows paralysis and habitual posture.

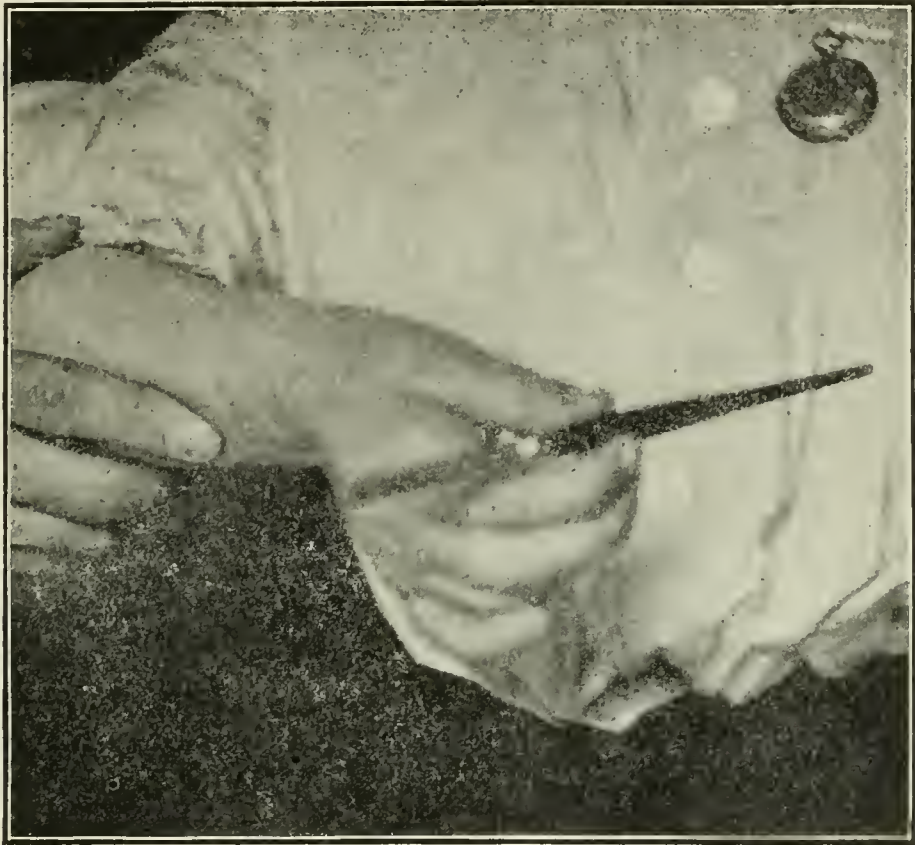


Fig. II. After operation. Case I.

2d. To the importance of subluxation of the humerus in increasing the disability and a method by which it may be remedied.

3d. To a class of secondary operations by which it is possible to lessen disability in the more extreme cases.

## THE RETROGRADE ATROPHY OF THE PYRAMIDAL TRACTS.<sup>1</sup>

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*Introduction*—The retrograde atrophy of medullated nerve fibers is a centripetal, ascending process, slowly extending from the seat of lesion toward the trophic center.

It appears only after a considerable time, and may occur in the peripheral nerves, as well as the fiber systems of the brain and cord.

It is essentially a slow atrophic process, quite different in character from the acute changes observed in secondary degenerations and the so-called retrograde degenerations.

It must not be confused with the atrophy of the second order. This is a gradual wasting of a system of fibers otherwise intact, because of the functional inactivity into which it has been thrown by an injury to the contiguous neurones of similar function. This form rarely occurs excepting from injuries in early life, a common example of which is the hemiatrophy of the cord following amputation of an extremity.

The retrograde atrophy of the pyramidal tracts at the first glance resembles the usual descending degenerations. On closer scrutiny certain differences become apparent.

The sclerosis is less compact, and contains in its meshes innumerable minute medullated nerve fibers, with attenuated myelin sheaths, giving to the field a somewhat "peppered" appearance.

The chief histological alterations are in the myelin sheath, which is atrophic, fragmented, or absent, as the case may be. The axis cylinders are well preserved, although slightly swollen and staining faintly. The retrograde process extends, as a rule, only a few inches above the lesion, and in none of the recorded

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<sup>1</sup> From the Pathological Laboratory of the Cornell University Medical College, New York.

cases could be followed above the decussation of the pyramids.

It is also interesting to note that the pathological changes in the nerve fibers are in a more active stage at the upper limit of the atrophy, i. e., furthest removed from the initial lesion, showing the gradual progression and manner of extension.

The condition is met with but rarely, and is very inconstant in the time required for its development. The number of recorded observations is small.

Michaud<sup>1</sup> described as early as 1871 a degeneration of the pyramidal tracts above a transverse lesion of the cord.

Sottas<sup>2</sup> (1893), however, was the first to describe in detail the special features of the retrograde atrophy of the pyramidal tracts.

Other observations are those of Williamson<sup>3</sup> (1893), Raymond<sup>4</sup> (1894), Gombault and Phillippe<sup>5</sup> (1894), Dercum and Spiller<sup>6</sup> (1896), Dejerine and Sottas<sup>7</sup> (1896), Durante<sup>8</sup> (1898), and Spiller<sup>9</sup> (1898).

In most of these cases the underlying pathological condition was one of many years duration; the syringomyelia, syphilitic patches of sclerosis and myelitis. I can find no record of any case in which the atrophy was apparent before the lapse of two years from the date of the initial lesion.

Gombault and Phillippe noted the retrograde atrophy after two years, and Williamson after two years and four months.

I recently examined the cord from a case of total transverse myelitis of acute onset, situated in the mid-dorsal region, in which the process had been stationary for two years, without finding the faintest indication of a retrograde change.

*Report of Case*—The case was one of slow compression of the spinal cord extending over a period of at least ten years. In addition to the usual secondary degenerations the retrograde atrophy of the pyramidal tracts was very evident, and could be traced to the decussation of the pyramids, and to a less degree through the medulla and pons. For a complete clinical and pathological record of the case consult the *Medical Record*, June 13, 1903, article entitled "On neurofibromatosis," by Fraenkel and Hunt. The essentials of the case, especially those facts bearing on the present study, are as follows:

A young married woman, aged 25, developed symptoms of a progressive compression of the spinal cord referable to a lesion



in the lower cervical region. The onset was most insidious and the progress an extremely slow one.

Owing to the absence of pains and irritative root symptoms, no operative procedure was undertaken, although the question was frequently raised and discussed. At an examination made in 1897 by Dr. Joseph Fraenkel, the motor and sensory paralysis was found to be complete, corresponding in level to the seventh and eighth cervical segments of the cord.

There was a total spastic paraplegia with flexion contractures, complete anesthesia to the clavicles, including a strip along the ulnar side of each arm. The intrinsic muscles of the hands, including some of the forearm group, were atrophic, and presented fibrillary twitchings.

This condition remained practically stationary until death, which occurred in the winter of 1902. She had been a patient in the Montefiore Home for ten years, during which time the cord had been undergoing gradual compression. For five years the trans-section of the cord had been practically complete.

In addition there was noted in the subcutaneous tissue of the right abdominal wall a large, firm, nodular tumor (plexiform neuroma), the true significance of which was not recognized until autopsy.

The post-mortem examination furnished an immediate explanation for the peculiar insidiousness and chronicity of the process. Beneath the laminae of the 7 and 8 c and I D vertebrae was situated a dense fibrous tumor, enclosed by the dura mater. Under the tumor, which was one and one-half inches long, the cord was reduced to a mere ribbon-like remnant, gradually tapering above and below to the normal configuration.

The growth, a neuro-fibroma, and evidently originating in one of the spinal nerve roots, is to be regarded as an extreme local manifestation of a general neuro-fibromatosis, which was exquisitely represented in the plexuses and nerve trunks of the peripheral nerves and the anterior and posterior nerve roots of the cervical region of the cord.

In the light of the pathological findings the plexiform neuroma of the abdominal wall assumes a much greater importance than was attached to it during life, and should have suggested the possible nature of the compression.

The atrophic strand, representing the last remnant of the cord, was composed merely of connective tissue and dense glia, with the calcareous remains of blood vessels and ganglion cells. A few medullated nerve fibers were still demonstrable on the periphery.

Below the lesion the sharply demarcated degeneration of the direct and crossed pyramidal tracts could be followed to their termination.

Above the compressed area, in addition to the usual secondary degenerations of the long ascending tracts, the pyramidal tracts, both direct and crossed, appeared sclerosed.

This degeneration of the pyramidal tracts was so distinct as to first suggest a second lesion at a higher level.

A careful examination of the brain and of the cord above the compression, showing the integrity of these parts, a retrograde atrophy was accepted in explanation.

In order to determine the nature and extent of the atrophy various levels of the cord, medulla, pons and crura were studied by the Van Gieson and Weigert methods.

*Microscopical Examination*—By the Weigert method the atrophy of the pyramidal tracts above the compressed level is distinct and well defined, and may be traced with ease to the decussation of the pyramids. The semi-lunar areas occupied by the direct pyramidal tracts stand out with especial clearness. Figs. 1, 2 and 3. The distinctness of the field of atrophy of the crossed pyramidal tracts is somewhat masked by the adjacent ascending degenerations and the network of the formatio reticularis of the cervical region of the cord.

On comparison with the descending degenerations (see Fig. 4) the retrograde atrophy is not so sharply defined nor so uniformly white, due to the presence of numerous fine medullated nerve fibers.

All evidence of the retrograde change does not cease, however, at the decussation of the pyramids. The pyramids of the medulla are a trifle smaller and are distinctly paler than normal. At the decussation this pallor is confined to the anterolateral aspect of the pyramid, whereas at a higher level (olive) it is more apparent in the dorsal area. In the pale areas the glia tissue is increased. Many of the pyramidal bundles in the pons are paler

and stand out with less distinctness than in normal control preparations.

In that portion of the crura cerebri occupied by the pyramidal tracts there is no visible sign of the slightest change. The histological changes are best studied in the direct pyramidal tracts. The sclerosis following the retrograde change is less intense, and the glia network is not so dense and coarse as in that of the ordinary secondary degeneration. Within the sclerosed area are scat-

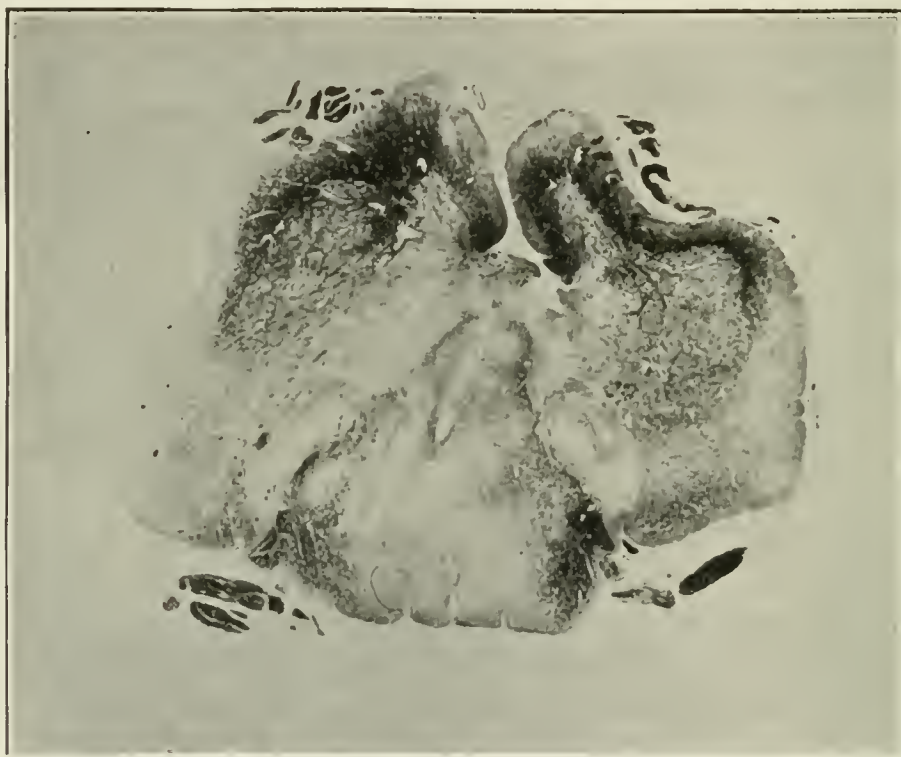


Fig. I. Wiegert-Pal method. Section of cervical cord just above the compressed level, showing retrograde atrophy of the direct and crossed pyramidal tracts.

tered numerous naked axis cylinders, staining faintly, some of which are moderately swollen. Others are enclosed by a very attenuated myelin sheath. Occasional spaces are seen, containing bare axis cylinders or with the myelin sheath fragmented and broken up.

The paracentral lobules of the Rolandic area were examined by the Nissl method. The large pyramidal cells of this region (cells of Betz) showed no definite pathological changes.



*Remarks*—The law of Waller not only demands the degeneration of the peripheral portion of the neuraxone, which has been separated from the cell body, but it demands as well the integrity of the central portion of the nerve fiber still in communication with the trophic center.

In recent years considerable controversy has attended the degeneration changes occurring in the central stump of an injured nerve fiber, the so-called retrograde degeneration.



Fig. II. Section from mid-cervical region showing retrograde atrophy of the direct and crossed pyramidal tracts.

Experimental and pathological studies have shown that not infrequently an acute degeneration in the central stump occurs, similar histologically to that described by Waller. It is, therefore, held by some observers that the old conception requires modification.

The consensus of opinion at the present time regards these inconstant and incomplete retrograde degenerations as nothing but descending changes obeying the Wallerian law, and referable to a concomitant disease of the cell body. Among the causes affecting

the cell may be mentioned pressure, toxins, a failure of the cell body to undergo reparative changes after the well-known reaction at distance (dislocation of the nucleus and chromatolysis). An ascending neuritis has also been adduced in explanation.

Slow retrograde changes in the nature of an atrophy do occur, however, in the central stump after injury or disease of the nerve fibers of the central and peripheral nervous systems, and is



Fig. III. Cervical segment. Retrograde atrophy of direct and crossed pyramidal tracts.

to be distinguished from the mis-called retrograde degeneration. Such atrophy is more pronounced the younger the subject and the nearer the lesion to the trophic center.

In very young subjects, or the newborn, the central stump may disappear entirely, constituting Gudden's degeneration. The atrophic process in such cases may also extend to the contiguous neurone of similar function, the so-called atrophy of the second order, or the tertiary atrophy, as it is sometimes termed.

In later life the neurones having attained their full development and a greater physiological and anatomical stability, the

atrophic changes in the central stump are comparatively slight, and the tertiary atrophy is not apparent.

The retrograde atrophy of the pyramidal tracts is of this nature, and receives its most satisfactory explanation in the prolonged disease and the consequent functional inactivity and nutritional changes which this would entail.

The strictly systematic character of the change, its appearance only after years of disuse, and the comparatively slight histological changes with preservation of the axis cylinders, allow of no other

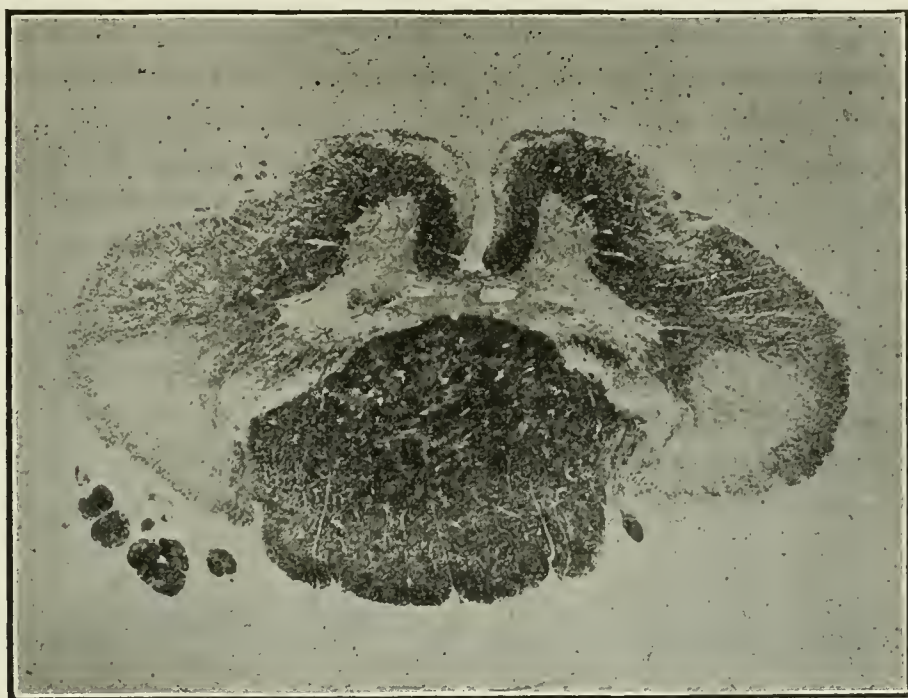


Fig. IV. Wiegert-Pal method. Mid-dorsal region. Descending degeneration of the direct and crossed pyramidal tracts.

interpretation. The slow extension of the process from the seat of lesion toward the cell is also in harmony with other facts which point to the more distal portion of the neurone as the more vulnerable.

This form of atrophy is inconstant, and varies in the time required for its appearance. Although many old cord lesions are subjected to study it is comparatively a rare finding.

This would appear to indicate a variation in the resistance and vital activity in the tracts of different individuals. A fact which has received confirmation under other conditions.



The comparative freedom of the sensory tracts from this form of atrophy is also to be emphasized.

The case which I describe does not differ essentially from those already recorded, except that very distinct evidences of atrophy were present in the pyramidal tracts of the medulla and pons, although milder in degree than that observed below the decussation.

The gradual fading away of the process in ascending is due partly to its nature and partly to the constant addition and admixture of normal nerve fibers from the higher levels.

It is also interesting to note the integrity of the cells of Betz. They were not only normal in configuration and constituents, but were remarkably free from any undue pigmentary change.

The secondary ascending sclerosis, which follows the atrophy, appears to be a simple replacement proliferation not compromising the adjacent normal fibers, which have entered the cord at higher levels.

This freedom from secondary implication of the normal fibers in the sclerosed area is to be inferred from the absence of spastic phenomena in the upper extremities, the nerve supply of which is above the lesion yet coursing through the sclerosis. This also favors the theory of the simple secondary nature of the atrophy.

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# MANIC-DEPRESSIVE INSANITY, WITH THE REPORT OF A TYPICAL CASE.

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Following the lead of Kraepelin the study of psychiatry has undergone very radical changes recently, resulting in an almost altogether new classification of mental disease, this classification being based upon the general course and outcome of the cases, rather than upon the immediate symptoms presented, as was the case in the older classification.

In the following paper I shall endeavor to give a brief outline of that symptom-complex known as manic-depressive insanity, with a report of a typical case of that psychosis.

By the term manic-depressive insanity we understand that mental disease characterized by recurring attacks of mental disturbance of more or less definite type, occurring at intervals during the life of the individual, in the interval between which attacks, in the large majority of cases, the patient regains his normal mental state.

The disease throughout its course is unassociated with any evidences of mental deterioration. On this last point great stress should be laid, since in the various types of dementia præcox we may meet with regularly recurring attacks of excitement that sometimes closely simulate a true maniacal outbreak, but here we always find evidences of deterioration, which at once takes the case out of the category of manic-depressive insanity. The majority of the cases previously spoken of as simple or periodic mania, or melancholia and circular insanity, belong under this heading:

*Etiology*—The most prominent factor in the etiology of this psychosis is heredity, a psychopathic or neuropathic family history being present in upward of 70 per cent. of the cases. Alcoholism and other excesses claim as theirs about 10 per cent. of the victims.

In woman, child-birth, with its consequent shock and exhaustion certainly acts as the exciting, if not the only factor in the causation of quite a large proportion of the cases. Quite a number

of cases follow an attack of the various infectious diseases, and grief or mental shock is spoken of as an exciting cause.

In by far the greater proportion of the cases, the psychosis first makes its appearance early in adult life, between the ages of 20 and 35 most frequently, but no period of life is entirely exempt. After this first attack it generally is impossible to discover any exciting factor for the subsequent attacks, hence our conception of the condition that a patient once a victim always a victim, that one attack of manic-depressive insanity renders it absolutely certain that the patient will have another if he live long enough.

*Pathology*—What we know of the pathology of this disease may be summed up in one word, "nothing," that is to say, no characteristic pathological anatomical basis has been discovered.

*Symptomatology*—Manic-depressive insanity manifests itself in one or two types, viz.: maniacal, or depressive, or as the mixed forms in which we find a simultaneous combination of the fundamental symptoms of both types.

The manic type is characterized by the following fundamental symptoms: A hypersensitive and unstable emotional attitude, corresponding to and changing with the content of thought, usually one of elation and happiness with a tendency to be dictatorial and over-bearing in manner. In the severe cases the emotional attitude is readily affected by suggestion from the surroundings or by thoughts of the patient, so that he rapidly passes from laughter to tears, offensive friendliness to irritability and furious anger.

There is a great increase of motor activity from the facilitated release of voluntary impulses, resulting in an abnormal spontaneity and precipitate response to every impulse.

There is a great disturbance of the train of thought and associations of ideas, varying in its intensity with that of the attack, and varying from simple prolixity to flight of ideas, sound associations, word salad, desultoriness or the simple repetition of isolated words of similar sound.

Distractibility is really always a prominent feature, which also varies in its intensity with that of the attack, manifesting itself in the milder cases by the patient's inability to continuously employ himself at any one thing or to follow persistently a particular line of thought, to the condition met in the severe forms when we find that each new stimulus from the patient's surroundings catches his



attention for a moment and directs his thought along this line until quickly diverted by something else, hence it is impossible to hold his attention to any particular subject for any length of time. The flight of ideas and sound associations may really be considered a result of distractibility.

Apprehension and comprehension show but little disturbance and the patient is able to answer questions correctly.

Clouding of consciousness and disorientation are only present in the severe cases.

Delusions play an unimportant part, when we consider the whole duration of the attack, but for transient periods they may be very prominent, and, in keeping with the patient's emotional attitude of elation, they are of a grandiose and expansive type. In the severest cases of the manic type, delirious mania, the delusions are dreamy, fantastic and exceedingly variable in content.

Hallucinations also play an unimportant role, and if present at all are only so for transient periods.

Excessive sexual excitement is often a very prominent feature, especially in women, and it is sometimes this symptom alone that necessitates their confinement in an institution.

The manic forms have been divided clinically into three (3) types, viz.: hypomania, mania and delirious mania, the difference between these being merely a question of degree and the dividing line very indefinite. We sometimes see all three of these phases presented in the course of one attack, as in the case reported below.

Hypomania, the first clinical sub-division, is characterized by a comparatively stable emotional attitude of mild elation and self satisfaction, unusual egotism and vanity, and a desire to attract attention. A mild increase of psycho-motor activity and talkativeness, with sometimes an approach to a low grade flight of ideas. An unnecessary attention to trifles, and the conception of many new schemes and enterprises. Altogether, to a superficial observer he seems much brighter and more energetic than ever before. There is often a marked sexual excitement, especially noticeable in females.

In the second sub-division, mania, the symptoms are more intense. The emotional attitude is much more unstable, and the patients are alternately laughing and crying, singing or fighting. There is a clouding of consciousness and disorientation, great

talkativeness with marked flight of ideas, sound association, word salad, etc. Great distractibility and excessive motor activity. Wildly expansive delusions sometimes play an important part. Sleep is much disturbed and the general nutrition may suffer considerably.

In the third sub-division, delirious mania, there is a great exaggeration of the previous symptoms, the clouding of consciousness being very marked, with disorientation, dreamy delusions and hallucinations, a high grade flight of ideas and intense motor activity. The physical disturbance here is profound, the patient sleeping little, and from the intense activity and small quantity of food taken or assimilated, he may pass on to a condition of exhaustion and death. The maximum intensity of this condition, delirious mania, is generally reached in the course of ten days or two weeks, when the patient may pass on to a rapid recovery, or into a condition of mania or hypomania, with a more protracted course.

We next come to the consideration of the depressed types of the disease. These are characterized by psycho-motor retardation, an absence of spontaneous activity and thought, dearth of ideas and an emotional attitude of gloom and depression.

The retardation of thought is manifested by the inability to readily grasp the meaning of what is said to him, by the slowness with which questions are answered, by the slowness with which conclusions are reached, the inability to reason quickly, simple mathematical problems done, etc. There is a lack of mental activity and a dearth of ideas. Difficulty is found in collecting his ideas or expressing his thoughts.

The motor retardation is shown by the slowness with which voluntary movements are executed and by the fact that though commands are usually obeyed an interval of several seconds or a minute exists between the order and its execution by the patient. All of the patient's movements are slow and listless. Under sudden excitement or startling circumstances this psycho-motor retardation may disappear temporarily.

There is usually a great diminution of spontaneous activity presenting the direct antithesis of the condition seen in the manic form, though when very active and painful delusions are present there may be considerable anxious restlessness. The emotional

attitude is one of continuous depression and sadness, but actual mental pain is not generally a very prominent feature, though in some cases it is. In reality there is considerable diminution of emotional activity, and not infrequently patients are heard to give expression to the most damning delusions without manifesting much feeling about the matter, though in others the patient will weep and bemoan his fate.

Delusions play a much more prominent part in this type than in the manic forms. They are depressive in character and quite variable in content, but the individual delusion, or set of delusions, are usually retained for some time.

Hallucinations of any or all of the senses are not infrequent. There may be considerable clouding of consciousness with disorientation in the severe cases, but this is absent in the milder ones.

Clinically we recognize three (3) degrees of this condition, each gradually merging into the other, and all sometimes seen in the course of an individual attack. These sub-divisions are as follows:

1st. Simple retardation without delusions or hallucinations. Here we find the patient in a condition of mild emotional depression, sadness and gloom. Thought is difficult, and he has but few ideas on any subject, finding difficulty in expressing himself or collecting his thoughts and having little or nothing to say. There is a lack of spontaneity, the patient sitting listlessly about and taking little interest in anything. Voluntary movements are slow and lackadaisical. There is no clouding of consciousness or disorientation. These patients often possess insight, realizing that they are mentally ill.

2d. Retardation with delusions and hallucinations. Here we find the previous symptoms much exaggerated, especially the emotional, depression which is often associated with ideas of self-accusation. These patients give expression to numerous depressing delusions, hypochondrical or religious. Active hallucinations of any or all of the senses may be present, and for short periods may largely dominate the case, in that they give direction to the trend of the delusion. The retardation and difficulty of thought may be so marked as to almost prevent the patient expressing anything intelligibly, and there is a marked lack of ideas. We expect



to find but little voluntary activity, and such movements as are made are exceedingly slow. We see this also evidenced in the hesitancy and slowness with which the patient answers questions, often an interval of a minute or more existing between the question and his answer. The emotional depression may be associated with great anxiety and fear, every sound about the house or movement on the part of the attendants causing the patient to start up frightened and ask what is to be done to him, etc. This is accompanied by an anxious restlessness, which, however, presents the characteristic retardation. There may be some clouding of consciousness and disorientation, but this is not the rule.

In the third sub-division, or stuporous state, we find dreamy and incoherent delusions and hallucinations, with great clouding of consciousness, which may pass on to absolute stupor. Here the patient gives absolutely no heed to what transpires about him, lies in bed, relaxed and without voluntary movements, failing to take food or drink and oblivious to the calls of nature, and giving no response to external stimuli. If the clouding of consciousness is not so severe, it may be possible to occasionally arouse him by strong stimuli to the extent of eliciting a few words or a groan.

The mixed forms of manic-depressive insanity are simply those phases of the disease showing a simultaneous combination of the fundamental symptoms of both types of the psychosis, and usually appearing as an episode in the course of a maniacal or depressive attack, or in the period of transition from one type to another.

Course and duration of manic-depressive insanity. The duration of the individual attacks is quite variable. Those cases running their entire course, as the manic phase, or with alternating manic and depressed periods, have an average duration of twelve to eighteen months, though a few recover in a much shorter time. Some 10 or 15 per cent. of these manic cases run a much more chronic course of from two to five years, or may even remain so permanently, or a condition of rapidly succeeding manic and depressive attacks may continue throughout the remainder of the patient's life. Those cases presenting the purely depressive symptoms run a somewhat shorter course of from two to six months.

*Prognosis*—The prognosis for recovery from the individual

attack is good, but for permanent recovery absolutely bad, for just so certain, as he live long enough, he will have another attack.

*Diagnosis*—The diagnosis of manic-depressive insanity is not very difficult, particularly if there is a history of previous attacks corresponding to the manic or depressive phases of the psychosis. However, with such a history care must be exercised not to confound this disease with dementia præcox or melancholia, both of which may present a picture of recurring attacks or periodic exacerbations of symptoms.

The manic form is most likely to be confounded with paresis in its excited stages and the excitement of dementia præcox. Paresis is recognized by the physical signs of that disease coupled with the evidences of deterioration manifested by the failure of memory and judgment, the blunting of the finer sensibilities, etc.

Those cases of dementia præcox presenting motor excitement, disturbance of thought, great talkativeness, etc., present greater difficulties, particularly if they present a course of periodic recurrence of such attacks. Here, however, we will find the more characteristic signs of that disease, viz.: mannerisms or stereotypy, aimless movements, silly and foolish laughter and conduct, indifference toward friends or relatives, and altogether but little manifestation of emotional feeling, failing memory, etc. There is also a history of early, active and persistent hallucinations which is very characteristic of dementia præcox and absent in manic-depressive insanity. Neither distractibility nor a clear cut flight of ideas is often met with in dementia præcox. In contradistinction to the manic patient, the activity of dementia præcox is aimless and without reason, and without special reference to his surroundings, whereas all the actions of the manic patient bear a direct relationship to the content of thought or his surroundings.

The characteristic psycho-motor retardation present in the depressive forms of manic-depressive insanity, differentiate it from melancholia of involution and the early depressed stages of dementia præcox. Melancholia does not make its appearance until the involutional period of life, while manic-depressive insanity is rather a disease of early adult life. In melancholia the mental anguish and delusions of self-accusation are much more prominent and altogether there is a greater emotional activity than in the depressive forms of manic-depressive insanity. The emotional

attitude of the dementia præcox patient is not in keeping with the delusion expressed, and he is indifferent towards his friends and family, the directly opposite condition being found in manic-depressive insanity. Bear in mind the early hallucinations of dementia præcox.

*Treatment*—In the treatment of the maniacal forms the indications are to control the excessive activity and talkativeness. This is best accomplished by rest in bed, the removal of all distracting influences, and the exercise of kind but firm authority. If the activity and talkativeness are not restrained the patient thereby increases his own excitement. The ideal method of treating an excited maniacal patient is to completely isolate him from all other patients in a quiet room, with only a single nurse, who must be possessed of such a personality as to enable him to exercise authority and control of this particular individual.

The patient should be made to remain in bed and his restlessness and talkativeness checked as far as possible. Every idea to which such a patient gives expression simply serves to call up another to his mind, for which there is an equal desire to give expression. The same is true in regard to the activity. When it is not practicable to thus isolate the patient with a special nurse, the same idea should be carried out with such modification as the circumstances demand. At times it will be necessary to resort to sedative measures. Excellent results follow the use of the hot or cold pack or the prolonged warm bath. Sulfonal, trional, choral and the bromides are safe and effective sedatives for these patients. The patients should be kept in bed until the tendency to over-activity and talkativeness has in a large degree disappeared, and after being allowed up, excitement and irritation should be avoided. In the milder types of the manic form, it is frequently a good idea to confine the patient in bed for a period in order to get control of him, in other words, to "halter-break him." In the care of the depressed cases there are no particular points to be borne in mind except those with which we are all familiar in the care of such patients. The danger of suicide must always be borne in mind, and the patient watched accordingly. The occurrence of physical symptoms and indication for treatment must be met as in any other disease, the same principles governing us.

The following case I have reported at length and in detail, since



in a comparatively short time, less than three months, it has presented both types and nearly all the phases of the psychosis:

M. F., American, male, white, aet. 31, brewer, married, one child. Family history negative. A very doubtful diagnosis of syphilis nine years ago. This man has been quite dissipated since early youth, and drank to excess until some two years ago, when at the outbreak of a maniacal attack he was committed to an institution. Since that time, though he has spent a year of the interim at business, he has been a total abstainer from alcohol. The first psychic disturbance occurred in the latter part of March, 1900, in the form of a maniacal attack, from which he so rapidly improved within three months that he was allowed to leave the institution in which he was confined. He considered himself perfectly well, and at once went to work, but was able to accomplish little, being easily worried and unable to correct his mistakes. Thus, we cannot consider him as having regained a normal mental state. He now began to show evidence of emotional depression, which soon became extreme and associated with depressing delusions and refusal of food. He improved in the course of a short while, but his residence in an institution was necessary for the next six months, when he returned home. He again attempted to go to work, but with the same result as in the previous remission, and he was considered to be in a more or less unstable mental condition, and in September, 1901, gave way before another maniacal outbreak, and was committed to one of the State hospitals, from which, in the latter part of December, 1902, he was transferred to the Long Island Home. At the time of his admission to the Long Island Home he showed little abnormality other than a certain over-productiveness and playful manner. He remained with us until April, 1903, when he was discharged as recovered.

After leaving us he took the management of a large hotel in New York City, conducting it successfully, but at the expense of great mental strain and worry. In the early part of December, 1903, he began to show abnormal activity and elation. Became talkative and boisterous, and in the course of a few days began to express grandiose and expansive delusions, and on December 16 was admitted to the Long Island Home.

*Initial Examination*, December 16, '03—He is very much elated, but emotional attitude, is subject to sudden and violent changes from trivial causes, and corresponds closely to the content of thought, confidential and friendly, at once telling me, a perfect stranger, of all his most personal affairs and ambitions. Dictatorial and commanding towards his attendants. No special motor activity save in response to his delusions, for the most part remaining quietly in bed. Talked constantly, in a loud voice and in

a rambling, disconnected way, his ideas not being well connected in regard to sequence or bearing on each other, and a great mass of extraneous matter being brought in. Is mildly distractible. There is a great wealth of wildly expansive delusions, frequently changing and freely expressed. He is the greatest man in the world. Is Jesus Christ. Will make this place heaven. Will make every one Jews or Christians. Will form the greatest trust ever known and make a colossal fortune within the year, etc., etc. No hallucinations. Is fully oriented. Has partial insight, realizing that he is not well—says that he is nervous. Memory is quite good. No evidence of deterioration. Examination of his reflexes, pupils and co-ordination showed nothing abnormal or distinctive, which condition has maintained throughout the time that he has been under observation. Physical condition fair. The patient up to this time may be considered to have been in a condition of mania. The symptoms now increase to the degree that may be looked upon as delirious mania, as follows:

December 19, '03—Now delirious, there being a marked clouding of consciousness. Emotional attitude corresponds to content of thought and shows many and sudden changes. He is at one moment elated, dictatorial and threatening, the next is weeping, fearful and suspicious, talking constantly, clapping his hands, trying to get out of bed and to do a dozen other things at once. A beautiful flight of ideas. Sound associations prominent. Is very distractible, and it is impossible to hold his attention for more than a few moments. Dreamy and incoherent delusions of an expansive and grandiose type, rapidly changing and without system. He is the strongest man in the world, and is going to fight Corbett to-night. Preparations are being made for his marriage, and he must get up and dress. He killed his father this afternoon and hears the hearse passing. He and Dr. Wilsey died side by side this afternoon. Fleeting hallucinations of hearing. His orientation and comprehension of his surroundings varies from time to time, at one moment he being perfectly clear on these matters, while a few minutes later he thinks he is in a hotel in New York, that those about him are his chums and former associates, and that they are getting ready to attend a Fourth of July celebration.

This condition continues for five or six days, when some improvement is noted, and he again passes into a state of mania.

The sensorium gradually becomes clearer during the next two weeks, and delusions rapidly recede to the background, to appear no more in the course of the disease up to the present. Pressure of activity, great talkativeness, with flight of ideas, word salad, and sound associations, distractibility and hypersensitive emotional attitude continues. Reacts quickly and unrestrainedly to every impulse, laughing and friendly at one moment and fighting the next. The most trivial things cause laughter or tears as the cir-

cumstances vary. This excitement gradually subsides, and some five weeks after admission we find the patient quiet, with but little to say, and very orderly, with the exception of some restlessness for an hour or two in the evenings. Is now sleeping well, and is improving in his physical condition, which suffered materially during his period of wild excitement. His answers to questions are short and pertinent, but if forced to talk for any length of time he becomes rambling and incoherent. About the second week in January he began to manifest symptoms of the depressive type of the psychosis, his condition first corresponding to the description given of simple retardation, but later becoming stuporous, as follows:

January 11, '04—Clouding of consciousness now appears again and orientation becomes very defective. Patient lies in bed, with absolutely nothing to say voluntarily, and the greatest urging is necessary to elicit answers to questions. There seems to be an almost total lack of mental activity, though for periods of a few hours at a time he weeps, and seems much depressed, but gives no explanation for this conduct. There is a slight motor retardation in his voluntary movements. This continued for the next four days, when he passed into a condition of stupor, from which it was impossible to arouse him. Lay absolutely still in bed and no response from any stimuli could be elicited. Completely relaxed, eyes fixed and glassy and mouth open. After one or two attempts to give liquids by mouth, when he almost strangled, and would not swallow at all, we desisted, and were forced to rely entirely on rectal feeding and medication. Pulse 116-150, full and regular. Rectal temperature 101-102. Tongue foul and breath fetid. Careful physical examination was otherwise negative. Urine contains a few granular and hyaline casts but no albumin. This condition persisted unchanged for the next five days, when the cloud seemed to gradually lift, and he began to respond sluggishly to strong stimuli, but it was not possible to sufficiently arouse him to obtain any verbal response. By the next day he would answer questions, after an interval and in monosyllables. There was marked psychomotor retardation, little voluntary activity and mild clouding of consciousness. Was indifferent to what transpired about him, and there was but little emotional activity. The elevation of temperature and rapid pulse were somewhat puzzling, but were probably due to the absorption of toxins from the foul gastrointestinal tract.

In the course of the next ten days there is a rapid improvement, and we find that the patient has almost regained his normal state, though he is easily irritated by trifles, becoming cross and abusive. Retardation has entirely disappeared. He thus continues for about two weeks, being sufficiently well to be up and about during a part of each day, to receive an occasional visitor, and on the



whole to make himself pleasant and agreeable as a rule. His sleep, however, remained quite irregular and deficient, and on several occasions he became noisy at night, singing and whistling. Throughout this period of remission there was always present a lack of self control, a tendency to yield to every impulse. This remission lasted about three weeks, when, on February 10, it ended suddenly in an outbreak of excitement, this coming on in the course of a day and without any apparent cause. Became very talkative, with flight of ideas and frequent sound associations. Quite distractible. Was very much elated, but emotional attitude corresponded to the content of thought and varied with the same. At first there was little increase of motor activity, and, in fact, this has not been excessive at any time during the last attack.

March 28, 1904—There has been but little change in the symptoms presented during the past six weeks, save a difference in their degree at varying intervals. He shows a marked incoherence of thought, resulting in a flight of ideas and sound associations, to the degree that only a few connected words can be gained from him on any topic, though his answers to questions when short are pertinent and relevant. Though there is a great wealth of words, the actual dearth of ideas is plainly manifest. There is marked distractibility. There is a great increase of motor activity. His emotional attitude is usually one of mild elation, but this varies with the content of thought, showing sudden and sharp variations from trivial causes. There are no delusions or hallucinations. He is fully oriented for time, place and person. His memory shows no defect, and in no respect does he give any evidence of deterioration. The patient has some insight into his condition, often remarking that he is crazy, that he talks too much and very foolishly. When questioned he gives a fairly accurate account of his previous attacks and recognizes in them an evidence of mental illness.

At the present time his condition does not vary greatly from that noted above, except that the motor activity is not so great. He still manifests considerable elation, disturbance of the train of thought reaching at times the degree of a flight of ideas. He is self asserting, irritable, and at times assaulting. Not infrequently he is noisy and disturbing at night.

To sum up then we have a patient with a history of four periods of excitement and two of depression, one stuporous. There have been three intervals in which the patient regained a condition approaching his normal state. In two of these, however, we cannot consider him as having recovered, since he was unable to transact his business because of an over-susceptibility to worry over trivial matters, and during which periods was practically unable to accomplish anything in a business way. In one of these intervals, however, of almost a year's duration, he was able to return to and successfully conduct a business demanding consider-

able mental application and executive ability. A diagnosis of manic-depressive insanity is made from the history of the previous attacks of maniacal excitement, presenting increased motor activity, incoherence of thought with flight of ideas, word salad, sound associations, etc., and a marked distractibility, these attacks followed by almost or complete recovery, or by a period of depression, in which there is a great diminution of his ordinary activity and productiveness, psycho-motor retardation, dearth of ideas and clouding of consciousness, at one time reaching a condition of absolute stupor, and from the fact that though it is now three years since the first onset of the psychosis, he shows absolutely no evidence of deterioration.

In the treatment of this case until the excitement and great activity were very greatly reduced, our main reliance was rest in bed and the removal of all distracting influences. To accomplish this latter he was kept in a private room with a special nurse, and only those allowed to see him whose visits were absolutely necessary. During this time the cold pack was freely resorted to as indicated, to control excessive activity and excitement. The diet was simple, nutritious and easily assimilable, given at regular intervals and in somewhat larger quantities than in patients put to bed for physical ailments, the great motor activity demanding it. After the subsidence of the excessive activity and excitement, he was gotten up, given much outdoor exercise and kept in the open air as much as possible. The case has been treated practically without drugs, save as indicated by his general physical condition, when such indications have been followed as would govern us in the treatment of any other condition. Mechanical restraint has not been used.

A MICROSCOPICAL STUDY OF THE SPINAL CORD, NOT COMPRESSED BY DISPLACED VERTEBRÆ, IN A CASE OF POTT'S DISEASE; AREAS OF NECROSIS IN THE CEREBELLUM, ONE SUPERIOR CEREBELLAR PEDUNCLE AND CORD; REINAUD'S BODIES IN ONE SCIATIC NERVE.

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(From the Jefferson Medical College Laboratories.)

The case I am about to report is interesting from several standpoints. Besides the uncommon pathological findings we have here a variety of Pott's disease, in which the cord was entirely free in the spinal canal and no distinct adhesions of the meninges were noticeable. From the absence of compression of the cord one could infer that it is a case of Pott's disease in its earlier stages, but the changes found point rather to a disease of long duration. The latter tend to show that toxins may affect the cord to a considerable extent long before vertebral or pachymeningeal compression takes place. This observation particularly deserves our attention.

J. H. C—, aged fifty-three, colored, steward in U. S. Navy, admitted to the Douglass Memorial Hospital, January 19, 1903. He gave the following history:

Fifteen years ago had a chancre and orchitis. Was married twice, both wives had miscarriages. In August, 1902, while at work on the ship, he was exposed for a long time to dampness, after which he suffered intense pain in the lumbar region. Three weeks of treatment in the German Hospital improved the condition, but he soon developed severe pain in the epigastrium down to the umbilicus. Shortly afterwards the pain extended to the lower extremities and since then the latter gradually became numb and weak.

The examination on admission showed complete flaccid paraplegia with the knee-jerk lost on the left side, exaggerated on the right, no ankle-clonus on either side, Babinski only on



the left side. Sensory disturbances were marked: touch and pain sense abolished on the right, delayed on the left, temperature sense lost on both sides. Patient presented marked trophic disturbances of the skin: two bedsores of a few weeks' standing and the nails were very much deformed and brittle. The sensations of the perineum were normal. The abdomen below the umbilicus presented complete loss of all sensations with the exception of a few areas which were hypesthetic. Above the umbilicus on the trunk and upper extremities were no sensory or motor disturbances. The sphincters of the bladder and rectum were much involved: very frequent and imperative micturition, also incontinence of feces disturbed the patient considerably. The pain of the lower extremities mentioned above disappeared entirely. As the patient complained of a dull pain in the back between the shoulders, the spinal column was examined and a prominence of the 9th and 10th dorsal vertebræ was found. The upper extremities showed distinct muscular atrophy, especially in the small muscles of the hands.

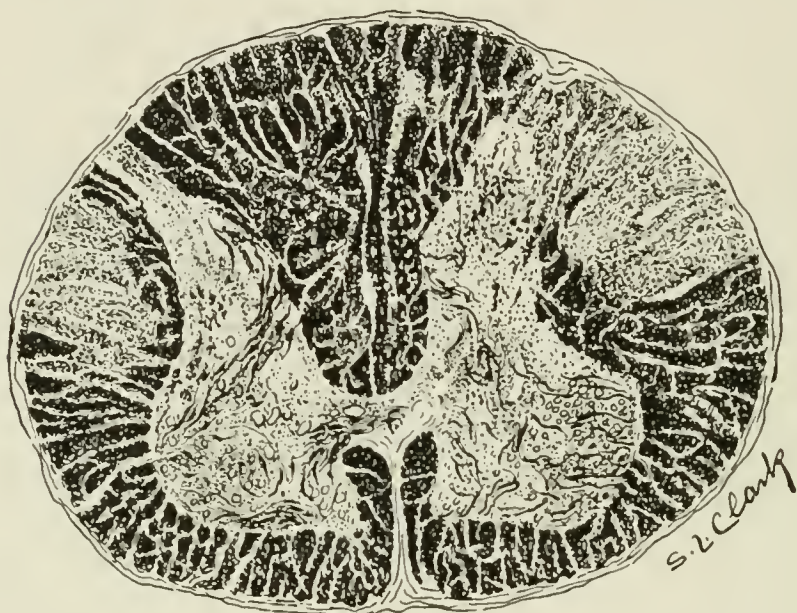
A second examination of the patient made a fortnight later showed that the knee-jerk on the right, which was before exaggerated, was now very much diminished. Patient also complained of tingling sensations, and at times of pain in the left upper extremity. The muscular atrophy of the upper limbs was still more marked.

An examination made some time later showed total disappearance of the right knee-jerk and increased sharp pain in the left arm. The muscular atrophy was extreme, so that he handled objects with great difficulty. The bedsores suppurated considerably. The patient began to cough and expectorate and had occasionally evening chills. There was slight elevations of the temperature in the evening ( $99.3^{\circ}$ — $100^{\circ}$ ). Sputum showed tubercle bacilli. The pain in the back gradually increased, the condition of the sphincters became intolerable, and on the 14th of April a right facial paralysis with a marked weakness of the right arm and inability of swallowing made their appearance. The patient soon became unconscious and expired. The autopsy was made 12 hours later by Dr. A. G. Ellis, and these are the gross findings he reports:

AUTOPSY FINDINGS ON BODY OF MR. C—, DOUGLASS MEMORIAL HOSPITAL, APRIL 14, 1903.

"The body is that of a markedly emaciated adult colored male. There is a large irregular ulcer over the sacral region with extensions well down over each buttock. There is a

noticeable, but not marked, prominence of the spines of the ninth, tenth and eleventh dorsal vertebræ. On opening the spinal canal there is found caries and softening of the bodies of these vertebræ, especially the ninth and tenth. Angulation is not present and the lumen of the canal, although slightly encroached upon by the carious vertebræ, is not sufficiently interfered with to cause noticeable compression of the cord.

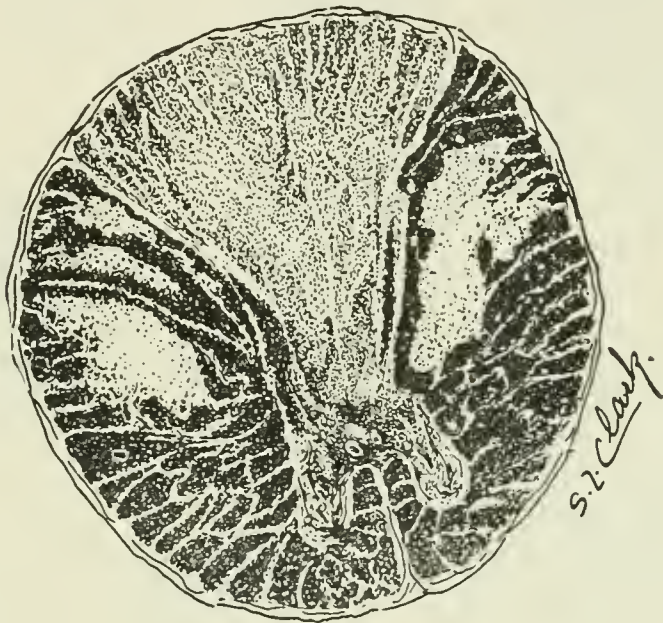


Lumbar segment showing descending sensory degeneration in the posterior columns, also degeneration of crossed pyramidal tracts.

The lower portions of the cord are perhaps slightly swollen. The superior surface of the brain is somewhat edematous, but shows no conspicuous gross lesion.

"The lungs show some emphysema, with hypostatic congestion of the posterior portions. The middle lobe of the right lung is adherent to a protuberance on the vertebral column at a point corresponding to the level of the carious vertebræ mentioned. On separating these adhesions the lung is torn, revealing a softened, caseous area 5 cm. in diameter. The surrounding lung tissue contains numerous gray nodules, none of which are more than 0.5 cm. in diameter. The left side of the vertebral column at this point shows two small protuberances, but the lung is not adherent and is apparently sound. The kidneys show changes indicative of a moderate degree of chronic diffuse nephritis. The liver is congested and shows evidence of fatty infiltration. The other viscera show no gross lesions."

The brain, the cord (except its cervical portion, which for some reason was not removed), a portion of the lung, sections of both median and sciatic nerves were kept for microscopical studies. The lung showed caseous areas encapsuled in connective tissue. Sections of the brain showed nothing of importance. The cerebellum on horizontal sections showed in the center a large area of softening. This was more marked on the right half than on the left and included also the middle lobe. The softening extended down to the lower surface of the cerebellum, so that it can be safely said that a part of the roof of the 4th ventricle, was formed by the pulpy mass of the



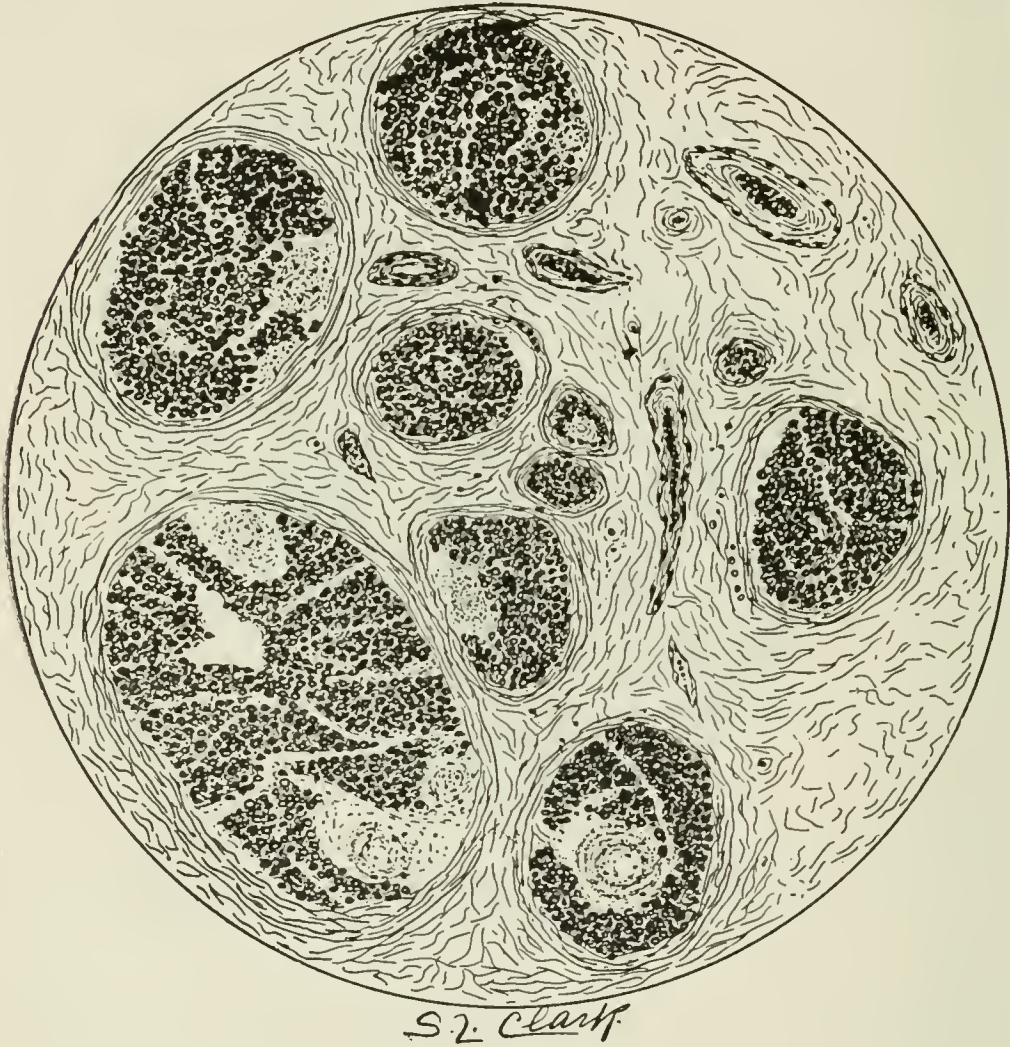
Tenth thoracic segment, showing areas of necrosis in the lateral tracts, also complete degeneration of posterior columns.

softened cerebellum. The softening occupied only three-fourths of the thickness of the cerebellum. After the usual process of hardening, the tissues were examined microscopically with the methods of Marchi, Weigert, Weigert-Pal, thionin, hemalum and carmin.

The cells of the entire cord showed very pronounced changes, and particularly in the mid-thoracic region. In some cells the periphery stains less than the center, they have lost their multipolar appearance, are oval in shape. Some cells present very fine granulations (dust-like), one pole is discolored, in some the chromatic substance is broken up and not uniformly distributed through the cell, no dendrites, nucleus.



excentric, nucleolus absent. Other cells present a central chromatolysis with a nucleus irregular in shape and position, without a nucleolus. Some cells are very much diminished in size (atrophy) with chromatin only around the nucleus, which forms hernia on the periphery of the cell. Other cells



Right sciatic n, showing Rénaut's bodies.

are very much elongated with chromatin only on the poles, vacuoles on one side, dendrites hypertrophied, two nuclei. On some sections only vestiges of cells can be seen, or round cells with torn off edges, empty in the center, free from nuclei. In the upper and mid-thoracic sections are found quite a number of cells filled with yellow pigment (pigment degeneration) without dendrites or nuclei, with marked deformities. In the upper lumbar sections there is also a marked

chromatolysis with deformities of the cells, but these changes are less marked than in the sections above. In Clarke's columns there are very few cells at the level of the 10th and 11th thoracic segments. In sections below this level distinct chromatolysis could be seen.

The spinal ganglia are markedly diseased. Three-fourths of the cells are empty (no granules), nucleus and nucleolus lie either on the periphery of the cell or are entirely absent. All the sections of the entire cord show the presence of a great number of amyloid bodies, especially in the posterior columns.

EXAMINATION FOR DEGENERATION:—Upper thoracic cord.—The degeneration, is distinctly limited to Goll's tracts except posteriorly, where it encroaches slightly upon Burdach's columns. It is also present in the posterior roots as they approach the tips of the posterior cornua. Near the roots there are dilated and obstructed blood vessels. Some degenerative changes are noticed in the anterior roots with similar changes in blood vessels. Near the central canal two cavities are seen. With Marchi this section shows some degenerative changes also in Burdach's columns, and by far more degenerated nerve bundles than with Weigert's method.

Ninth thoracic segment.—The degenerated area in the posterior columns has increased considerably and involved also the entire Burdach's tract, except in its postero-lateral portion. The direct cerebellar tract in its anterior portion also that portion of Gowers' tract with which the latter is in contact, show some degeneration. The posterior roots are not involved in this section, but the anterior show the same changes as in the previous section. With Marchi Gowers' tract is seen to be more involved than with Weigert's method. In Lissauer's tract also all the nerve bundles show considerable degeneration.

Tenth thoracic segment shows complete degeneration of the posterior tracts, two small cavities near the central canal, foci of softening in the lateral columns corresponding strictly to the position of the crossed pyramidal tracts. Posterior roots show distinct degeneration on one side of the cord. Here again numerous dilated and thrombotic blood vessels in the nerve bundles and at the periphery of the cord.

Eleventh thoracic segment.—In the posterior columns besides a few degenerated fibers there are seven or eight foci of softening on one side and three or four on the other disseminated in the columns of Goll and Burdach. Two areas of softening we find in the anterior columns corresponding to the position of the tracts of Löwenthal and Marchi and the

olivary tract. In the lateral columns there is some degeneration of the cross pyramidal tract involving also partly the very posterior portion of Gowers' tract. The posterior roots are somewhat degenerated. At the periphery of the cord are seen dilated blood vessels, the majority of which are filled with thrombi; some nerve bundles around the cord are degenerated and contain dilated and thrombotic blood vessels. With Marchi the direct cerebellar and Lissauer's tracts show considerable degeneration.

First lumbar segment presents small cavities near the central canal, a linear degeneration in the posterior columns of one-half of the cord, but distinct degeneration of the crossed pyramidal tracts and only moderate changes in the direct cerebellar tracts. The posterior roots show no degeneration. The condition of the blood vessels is the same as in the previous sections. The linear degenerated area begins below the commissure and is somewhat diffuse at this level, but when it reaches the middle of the posterior columns, it becomes distinctly linear and is located almost close to the septum; at the lower third of the latter it moves over towards the middle of the column where it becomes again diffuse without, however, reaching the periphery of the cord.

The second lumbar presents also cavities and the same linear degeneration of the posterior columns, although smaller in size. The direct cerebellar tract does not show any involvement.

In the fifth lumbar segment the linear degeneration is no more in its former place, and in its place we find a similar long area midway between the septum and the cornua, although nearer the latter than in the 1st, shorter and wider than in the 1st and 2nd lumbar segments. Again the commissure and the periphery of the cord are not touched. On the same section we also notice some diffuse but not marked alterations near the commissure on either side of the septum. The roots are not involved.

As to the meninges, changes were found mainly in the 10th and 11th thoracic segments, but also to some extent in the lumbar portion. They consist of a distinct, although not very pronounced thickening and leucocytic infiltration of the dura, and to some extent of the pia. The blood vessels at the periphery of the cord, besides their very marked dilatation, show distinct endoperiarteritis with small cell infiltration. The latter was also found in the perineurium of the nerve roots in some sections. The small cell infiltration can also be seen in the vessels of the degenerated areas in the cord, especially of the 10th and 11th segments.



In the medulla no changes were found in the nervous tissue, but the blood vessels were distinctly dilated and some of them filled with thrombi. In the upper portion of the pons two areas of softening are seen in one of the superior peduncles.

The examination of the peripheral nerves show that both median and the left sciatic nerves present some degenerative changes, thickened epineurium and in some places enlarged blood vessels. In examining the right sciatic nerve I found structures in some of the nerve bundles which resemble those described by Rénaut in 1881 and by Spiller in 1900. Curiously enough no degenerated areas could be traced in this nerve.

The degenerative changes described in the cord appear to have their point of departure in the 10th and 11th thoracic segments. As we have seen, the foci of softening in the 10th segment lay in the lateral columns in the region of the pyramidal tract. Below this level in the 11th thoracic we see already some typical degenerated fibers in the crossed pyramidal tract and in the lumbar segments complete descending degeneration of this tract. Above this segment the crossed pyramidal tract is intact. In the 11th thoracic segment the foci of necrosis are concentrated in the posterior columns with the result, that in sections above this level the posterior columns show complete degeneration. Up to this point the pathological changes are found to be in accordance with our classical knowledge of the direction of the sensory and motor tracts. Below the 11th thoracic segment, however, I found a linear degenerated area in the posterior columns, corresponding in some respects to the description given by Schultze (*Arch. f. Psych. u. Nervenkr.*, 1883). This writer in studying a transverse lesion of the cord found below the diseased focus in the posterior columns a degenerated area which he described as two lines parallel with the posterior cornua from which they lie at a certain distance and do not reach the periphery of the cord. In my sections from the 12th dorsal down to the sacral segments this linear stainless area can be seen distinctly with Weigert's method.

According to some authors this so-called comma area of Schultze reaches the periphery of the cord and the posterior commissure, some on the other hand say that it occupies only one portion of Goll's columns. Dejerine has shown that

in degeneration of the roots Schultze's bundle is smaller in length and width than in cases of transverse myelitis. Various descriptions of isolated degenerated tracts in the posterior columns have been given under the same name of comma zone of Schultze, although they do not all correspond to the exact position as given by Schultze. At all events the occurrence of an isolated linear degenerated area in the posterior tracts recalls the one described originally by Schultze. The significance of it is that it is the expression of a descending sensory degeneration. Although Schultze's case was the first to show the comma-like degeneration bearing his name, nevertheless descending degenerations in Goll's columns were known long before him. Bastian (*Med.-Chir. Trans.*, 1867), Kahler, Pick (*Arch. f. Psych.*, 1880), Strümpell (*ibid.*) and Westphal made this observation before Schultze, and at present this is a fact accepted by all neuropathologists. Before Hoche's publication in 1896 (*Arch. f. Psych.*) this descending degeneration of Schultze's type was not observed below the 11th and 12th thoracic segments. This author and after him Senator (*Ztschr. f. Klin. Med.*, 1898) who corroborated his findings have shown that in lesions as high as the 7th thoracic (Hoche) and even as the 7th cervical (Senator), this comma like descending degeneration may begin as low as the 10th thoracic (Hoche) and continue down to the lower lumbar segments. Dejerine and Théohari, after a careful analysis of all the cases reported by others and of their own arrive at this conclusion, that the comma-like tract can be found in any portion of the cord; its localization depends upon the situation of the initial lesion; in lower transverse lesions the area in question will be found even as low as the sacral segments. In my case the descending degenerated area corresponds in many points to the classical comma-type of Schultze. As to the explanation of this retrograde degeneration we must refer mainly to the works of Cajal, v. Lenhosék and Kölliker, who have shown that the posterior root fibers in entering the cord are divided into ascending (long) and descending (short) branches. In root lesions therefore we can expect degenerations of these two branches and especially of the short ones. The latter condition probably will

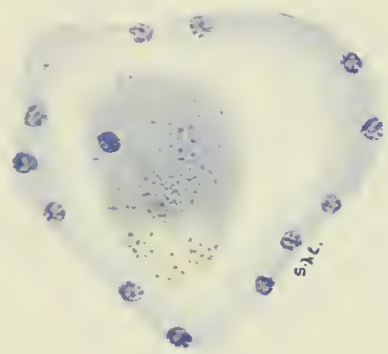
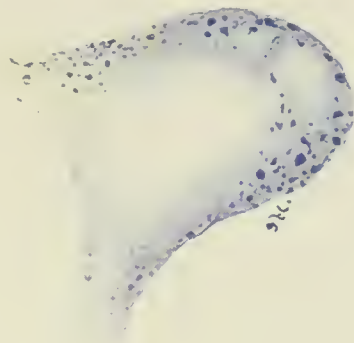
explain the cause of the existence of Schultze's comma zone. However, not all neuropathologists are agreed on the origin of the long and short fibers in the posterior tracts. In my case, for example, the sections containing the descending degenerated area did not show root involvement. The direct cerebellar tract was also involved to a certain extent below the 11th thoracic segment, which can be better seen with the Marchi stain. However, this does not extend below the 3rd lumbar segment. We have here, therefore, again a descending sensory degeneration.

The case presents another interesting feature. When in Pott's disease the angle formed by the displaced vertebræ reaches the meninges and the cord, the pathological changes of the latter may be argued as due to direct pressure, although this point is not entirely settled. Cases of this character are abundant in the literature. But cases of Pott's disease in which the changes of the cord are marked in spite of absence of all trace of compression, are comparatively rare. In my case the cord was entirely free in the spinal canal and still the pathological changes are very pronounced. It raises at once the question of the possibility of influence at a distance of the tuberculous process of the bones. Moreover, it also shows that pronounced cord changes may be present with only slight meningeal involvement, as the meninges as stated above are moderately affected even at the level of the highest changes in the cord.

Let us analyze first of all the nature of the pathological findings. The thickening of the meninges and their leucocytic infiltration as shown with a nuclear stain (hemalum) especially in the walls of the blood vessels presents nothing specific. The condition as it is seen is found in tuberculosis as well as in syphilis. In the degenerated areas of the cord itself we also find small cell infiltration of some blood vessels, besides the areas of necrosis described above. The striking feature of the histological changes concerns the blood vessels, which are equally affected in the meninges, cord and nerve bundles surrounding the cord. Extreme dilatation in some places, considerable dilatation in most of the sections, thickening of the adventitia in the majority, disappearance of the



intima in some, thrombi in the majority of the vessels, hemorrhagic foci around some arterioles, besides the leucocytic infiltration mentioned above—these are the prominent changes found not only in the cord with its meninges, but also in the medulla, pons and cerebellum. Such a condition of blood vessels suggests at once tuberculosis of the nervous system. While on one hand no typical tubercles with giant cells were found, also repeated attempts at staining the nervous tissue for tubercle bacilli failed, on the other hand the necrotic areas in the cord situated at the same level with the caseous vertebræ, the condition of the arteries and veins which has been found in the majority if not in all cases of tuberculosis of the cord, in addition to the fact that the patient's lung was distinctly tuberculous and the sputum showed tubercle bacilli,—all these facts are in favor of tuberculosis of the nervous system in our case. There are now on record cases showing beyond doubt that the cord may be affected with tuberculosis without the presence of giant cells or miliary tubercles or even tubercle bacilli. Histologically our case resembles in many respects the one of the three published by Philippe and Cestan, who proved the tuberculous nature of the cord by experimental inoculations. In their 3rd case they have found total absence of pachymeningitis and still disseminated foci of parenchymatous myelitis were present. A careful analysis of all the microscopical records concerning Pott's disease published since show that the pathological process may vary considerably: myelitis in Potts' disease may be due to compression from the vertebræ, from peripachymeningitis, may be due to a moderate meningitis or even the cord may become primarily involved without participation of the meninges under the influence of tuberculous toxins circulating in the blood vessels of the cord. Here I wish to call attention to a very suggestive histological point noticed in my case. The endovascular changes are far less marked than the perivascular, a fact which is probably in favor of a perivascular lymphatic origin of the tuberculous process. Homen's recent experiments (*Neurol. Centralbl.*, No. 3, 1904, p. 21) prove conclusively the lymphatic route of injected bacilli and of their toxins; they also show that while in recent cases the pathological changes







of the nervous system depend upon the localization of the bacteria, in older cases in which the bacteria can no more be found, the alterations depend upon the poisons elaborated by the bacteria.

In considering the character of the findings we must not forget that syphilis may in a great measure simulate tuberculosis of the meninges and cord. Indeed, from histological standpoint syphilitic and tuberculous meningomyelitis do not differ from each other at the beginning. The endoperiarteritis and phlebitis, small cell infiltrations may be encountered in both affections. At this period it is only the etiology which enables us to make a differentiation. However, the tendency to ruptures of blood vessels and hemorrhages are more in favor of syphilis. In my case the diffuse myelitis was very marked, consequently at this period of development we should expect distinct gummatous formation, unless again like in tuberculosis of the cord the characteristic pathologic formation may be absent and the case still be one of syphilis. At all events my patient presented a suggestive history of syphilis and perhaps the changes in the blood vessels are the expression of a mixed infection.

As a last peculiarity noticed in the pathological findings of the present case is the so-called Rénaut's bodies. According to Spiller (*J. of Exper. Med.* vol. v., No. 1) Rénaut was not the first to mention these peculiar structures, which, however, bear the name of the writer who studied them in particular. They are found in nerves and present on transverse sections concentric circles of connective tissue with nuclei which are also concentrically arranged. I found these bodies only in the right sciatic nerve, in which there was no trace of ordinary degeneration. Both median and the left sciatic nerves which were also examined did not contain Rénaut's bodies. Spiller, who to my knowledge was the first in this country to describe these structures, found them only in one of the nerves of the brachial plexus. The latter seems to be a favorite place for them. As to the function of Rénaut's bodies, there is a theory according to which they serve as a protection for the nerve fibers, but this view is not shared by Spiller and others who have studied them in detail. It is only known that they are

found in normal and pathological nerves. In my case the nerve which contains these bodies presents no typical degenerative areas. Prof. Coplin, who has seen these bodies in sections from my case, expressed an opinion that they resemble somewhat Pacinian corpuscles, which are sometimes found on the nerves.

As a last point of interest is perhaps the condition of the reflexes in the lower extremities. At first alongside of complete flaccid paralysis Babinski's reflex was present on the left side, where the knee-jerk was lost, but not on the side where the knee-jerk was exaggerated. Later all these exalted reflex-phenomena disappeared. The present case is not suitable for any deductions on the pathogenesis of reflexes. We know now that the reflex mechanism has multiple relations and the analysis of the accumulated observations (experimental and clinical) tends more and more to show that the exclusivism of Bastian, Crocq, Collier and Buzzard cannot be accepted, but that Grasset's views are more in conformity with facts, namely, that spinal, basilar and cortical regions contain centers for both reflexes and tonicity; the latter undoubtedly has some controlling influence upon the former. The total loss of all the reflexes in our case has perhaps some interrelation as cause and effect with the softening of the cerebellum and one of the superior peduncles in addition to the diffuse myelitis.

#### EXPLANATION OF PLATES

From above downward—Cell of lumbar segment. Cell of spinal ganglion. Cell of lower thoracic segment.

## Society Proceedings

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### NEW YORK NEUROLOGICAL SOCIETY.

March 1, 1904.

The President, Dr. Pearce Bailey, in the Chair.

*A Case of Facial Hemiatrophy.*—This case was presented by Dr. Pierce-Clark. The speaker said he was indebted to Dr. McEntee for the history of the case, and to Dr. Holding for the X-ray pictures. The details of the case were as follows: The patient was a man, 62 years old, married, and the father of two children. His occupation was that of a clerk. His family history was negative. The patient himself had never had any serious illness. As a boy of five or six years he received a slight burn on the right side of the face, which, however, left no scar, and the occurrence of which slipped his memory during the first two or three examinations. Eighteen years ago, at the age of 44, the patient noticed a slight muscular contraction in the right side of the neck under the jaw, similar to that which was now present in the masseter and temporal muscles. The muscular twitchings were probably in the digastric and pterygoids. Rubbing diminished the spasm for a time. There was no pain, only discomfort, to which he soon accustomed himself. After three or four years he noticed the twitching, or fibrillations, now present. The tremor ceased at times, but quickly returned on fatigue, exposure to cold, excitement or any undue emotional stress. About six years ago he noticed the wasting in the right side of the face. Three years ago it became very marked, the teeth became decayed and loose, and were easily removed by a dentist. Early last January he contracted right trigeminal neuralgia in all three distributions of the nerve, from which he was now slowly recovering.

The physical examination showed that all the cranial nerves were free with the exception of the fifth. The sensory portion appeared intact, with the exception that differential smell and taste were a little slow on the right side, possibly due to the functional defect expressed in the neuralgia. The atrophy of the skin, subcutaneous fat and bone were sharply confined to the supposed distribution of the fifth nerve. There was no defect in the palate or tongue. There was no atrophy nor reaction of degeneration in the motor portion of the fifth nerve, the fibrillation being the only evidence of the involvement of the masseters and temporal. There was, however, a shortening of the masticatory muscle, which apparently restricted the separation of the jaws about one inch: this limitation was decreased in the absence of fibrillation so that he could do a little better than this, particularly in the morning, after a full night's rest. There were no lateral movements of the jaw, the pterygoids, apparently, not functioning.

The amount of asymmetry in this case was not so great as in those cases occurring in earlier life, where a hindrance of growth increased the effects of wasting. The atrophy had always been general and not especially marked in any one spot, as in the facial hemiatrophies of sclerodermal origin or of the morpheal type. The hair and the beard did not participate in the affection, although there was a rather marked thinning and whitening at the free border of the hair on the right side.



of the forehead. The lesion seemed to affect all divisions of the fifth nerve, and was not entirely confined to the right side.

Dr. William M. Leszynsky said he was interested to hear in Dr. Clark's case that the patient had developed a trigeminal neuralgia on the affected side of the face. The speaker said he had seen several cases of facial tic where subsequently a trigeminal neuralgia developed on the same side.

Dr. Pearce Bailey called attention to the long duration of the hemiatrophy, and said that the marked fibrillation was rather suggestive of the analogous condition observed in progressive muscular atrophy.

Dr. J. Ramsay Hunt said he did not see how Dr. Clark could exclude a slowly progressing lesion of the fifth nerve. A slowly growing tumor would account for the neuralgia, the hemiatrophy and fibrillation, and the muscular contractions in the masseter and temporal. The speaker said he thought the sensory symptoms excluded progressive muscular atrophy.

Dr. Clark, in closing, said the analogy between his case and one of progressive muscular atrophy did not go further than the fibrillation. There was no evidence of progressive loss of power in the masseter and temporal muscles. If the lesion suggested by Dr. Hunt was a tumor it must be a very slowly progressing one, as the condition had existed for eighteen years. Possibly it had to do with the motor division of the fifth nerve only. Slowly progressive alterations in the posterior root ganglions were very likely to be attended with trophic loss without changes in the pain or tactile sensations.

Dr. Clark presented some X-ray photographs to illustrate an easy clinical method of demonstrating volumetric hypertrophy in bone, muscle and fat in parts which undergo true or false hypertrophy. It obviated the necessity of excising tissue, which was a painful and inaccurate means of determining these alterations, although the latter method must be resorted to in order to determine whether the muscular increase was due to hyperplasia or fiber hypertrophy. The photographs were of a case of hypertrophy of the leg of the paralyzed side of an infantile cerebral hemiplegia. The X-ray negatives were made by Dr. Holding.

*A Case of Idiopathic Epilepsy in a Canary Bird.*—This was reported by Dr. Pierce Clark. The bird was a male, one year old, from a brood of four. The family and personal history was negative. No cause for the epilepsy was known. Typical idiopathic *grand mal* of Jacksonian onset, and *petit mal* occurred irregularly every few days at the beginning of the observation period. A description of a *grand mal* attack was as follows: The bird gave an epileptic cry and fell backwards from the perch in a severe general tonic spasm, which lasted about thirty seconds; it lay very still on its left side where it had fallen. Then followed a very short clonic spasm, during which the head turned decidedly to the left side, with the legs fully extended. After the spasm the bird became violently automatic; it flew about the cage and dashed itself against the wires. After a few minutes of this sort of physical activity it lay quite still in a stage of coma for six or seven seconds, and then began to peep and stagger about the cage, still continuing its automatic, purposeless acts, such as treating the seed-cup as a water-cup, and *vice versa*, without partaking of the contents of either. After two minutes the attack gradually wore off, and the bird acted normally, although it appeared somewhat dazed and did not sing for the next few days. The following day, treatment was begun with a 1 per cent. solution of sodium bromide in the drinking water. Much improvement resulted in the next two weeks, the bird again beginning to sing and to

act in a normal manner. Inasmuch as the amount of bromide solution was not limited, bromism began to appear in the third week. The bird sat with its head under its wing, with its feathers ruffled, and appeared sleepy and stupid. The bromide was then reduced to one drink a day at noon, which seemed quite sufficient. While the attacks during the next four months occurred weekly, they were all of a very slight character, excepting those of July 24, which were apparently induced by an accidental withdrawal of the bromides for a period of two weeks immediately preceding. These attacks, with the post-convulsive exhaustion paralysis, were as follows: The bird gave the epileptic cry and fell backwards from the perch, as before. The tonic spasm would last thirty seconds, with the legs drawn up so that the feet were under the wings. The bird lay on its left side, almost on the back; the head was turned to the left; the whole left side was strongly convulsed in the clonic phase, the legs extended, the wings spread to their fullest extent in fine tremor; then the spasm became remittent, and finally intermittent, that on the left side being the last to cease. The eyelids were in rapid nictation, the mandibles were open and shut rapidly in clonic spasm. The bird dashed about the cage as previously described, only more furiously; finally, it lay as though dead at the bottom of the cage (coma stage). The entire duration of the attack was four minutes.

Four more identical seizures followed the first in the next twenty minutes, a rather prolonged stupor stage ensuing after the last fit of the series. On attempting to walk and climb the perch the left leg could not be used. This temporary paralysis lasted about half an hour. The paralytic phenomenon occurred frequently after many subsequent attacks. It may be stated that when a bird extends the leg the toes are spread, but the converse was true in all the epileptic fits.

The bromides were finally withdrawn, and the attacks grew more severe and frequent, having a tendency to group themselves in series, a herald of the status epilepticus. The resulting paralysis in the leg sometimes lasted for an hour or more. The bird soon became exhausted by the frequent and severe attacks. He was no longer able to mount even the lowest perch, and sat on the bottom of the cage the greater part of the day with the head under the wing. The bromides were again given to note the possible staying power of the drug after the occurrence of the serial attacks. For a period of eight days the attacks ceased, and the bird gained steadily in strength and was apparently normal once more, when one day he was discovered in a peculiar position. He was tilted a little backward in the upright position, with the toes spread out for as broad a support as possible, and resting in part upon his tail. The head nodded rhythmically, and clonic spasms occurred every three seconds, accompanied by general fibrillary twitching of the entire body and rapid snapping of the mandibles with each clonic movement of the head. Rapid exhaustion ensued. During the last few hours the right leg and wing were so weak that he lay on the right side. The heart beat rapidly and violently at first, and finally weakened as death approached. There was apparently considerable increase in body heat, although thermometric measurement was not made. The autopsy, which was made ten minutes after death, showed an apparently normal brain in every respect, the calvarium also being normal in appearance. The brain was placed in absolute alcohol for cytological study of the cortex, but owing to some inexplicable error in the hardening process, the specimen failed to show anything convincing in its histo-pathological state.

The case showed (1) apparent idiopathic epilepsy in a bird. Nearly all previously reported cases of animal epilepsy, and especially in the bird, where an autopsy was made, proved to be Jacksonian traumatic

epilepsies. (2) Post-epileptic exhaustion paralysis. (3) Status epilepticus and death analogous in many clinical respects to that seen in man.

*A Case of Cerebral Tumor, with Specimen.*—Dr. Clark reported this case in order to show the absence of focalizing symptoms, particularly astereogenosis, which one would expect to be present from the nature, size and position of the tumor. The history of the case was as follows: S. B., aged 36, a housewife, married two years. A native of Hungary. Her family history was negative, and she had always enjoyed good health until eighteen months ago, when she began to complain of post-occipital paroxysmal headache, which was especially marked on the left side and extended down into the corresponding shoulder. Six months later the attacks of headache were accompanied by vomiting. On August 13, 1903, one year after the onset of her symptoms, an examination was made, which showed that there was no cranial nerve involvement excepting the optic nerve, the power of which was impaired, and in November the patient became completely blind. There was no astereogenosis in hand or foot. There were no focalizing symptoms excepting the persistent pain over the left parietal region, which was increased on pressure and accompanied by stiffening of the muscles on the left side of the neck.

Inasmuch as the patient became delirious at times from the headache, and as the X-ray negative showed a light shadow approximately in the region of the pain and tenderness, it was decided to make an exploratory incision, which was done by Dr. Hartley at the New York Hospital on January 20, last. There was considerable bulging in the trephine opening, but the operation failed to disclose the tumor. However, it relieved the patient of headache and all her distressing symptoms. The swelling disappeared from the optic disc and the nerve showed complete atrophy. Three weeks after the operation the patient disturbed the dressing, which she said irritated her scalp. In consequence of this the wound became inflamed, and death resulted on February 24.

The autopsy was performed by Dr. Biggs, who found a tumor deeply imbedded in the posterior-superior part of the right parietal lobe. It was round and firm and attached to the neighboring portion of the falx. It was about four and one-half centimeters in diameter, anteriorly its border corresponded to the termination of the collosomarginal fissure, and posteriorly it extended to within one centimeter of the parieto-occipital fissure. The probable diagnosis was an endothelioma of the dura.

*A Case of Myasthenia Gravis Pseudo-Paralytica (?)*.—This was presented by Dr. B. Sachs. The patient was a man of 35; a picture framer by occupation. He had typhoid fever in childhood, and when he was 16 years old he had an attack of St. Vitus' dance, which lasted about four months and was very severe. Five years ago he had pneumonia. Between the ages of 16 and 30 he was, comparatively speaking, a well man. In April, 1902, he stated that his tongue felt very heavy; this lasted about six weeks and then passed off. On February 1, 1903, he received a glancing blow on the head with a sharp knife. The knife, which was about 40 inches long and weighed fully 75 pounds, was attached to a table above his head, and came down full force, although it only caused a slight wound, which readily healed within a week. In September, 1903, his tongue again began to feel heavy, and he became very nervous. At times he did not have the use of his tongue at all.

The first examination of the patient made by Dr. Sachs revealed a peculiarity of speech, which was thick and distinctly bulbar in character. The head was inclined forward, and to the right side. He also complained of weakness in his hands, and said he could not do his work



properly. Formerly, he had been able to cut through many thicknesses of cardboard easily, but now he did not have the power to draw the knife through. There were no signs of paralysis, but he did not have the grasp of an able-bodied man. He complained of becoming tired after slight exertion. At the time of the first examination the knee-jerks were absent. Since December 5, 1903, when Dr. Sachs first saw him, there had been a distinct improvement in his speech and general condition. He complained that his vision was at times limited, so that he could not look up well. While using a knife or fork he occasionally halted in the movement for a moment, showing that the effort to use his muscles was at times ineffectual. Since the first examination the knee-jerks had returned and were normal. Another symptom of which he had complained was difficulty in swallowing; the food would at times produce a choking sensation and there was occasional regurgitation. He had also complained of drooling. He never had any trouble in chewing his food. There was no fibrillary tremor of the tongue; electrical examinations were negative. Heart and lungs and other organs were apparently normal. The reflexes were not increased. There was no atrophy anywhere, either in the shoulders or upper or lower extremities.

Dr. Sachs said he had examined this patient frequently, and the case had puzzled him greatly. The diagnosis had been still further obscured by the fact that the patient had been thoroughly mercurialized, and his gums had become affected. This was also the cause of the drooling. Among the conditions considered were a recurrence of the chorea, with thickness of speech, and amyotrophic lateral sclerosis, but the symptoms did not warrant either diagnosis. There was nothing to indicate the bulbar form of muscular atrophy, and Dr. Sachs said he finally came to the conclusion that the case represented an atypical form of *myasthenia gravis pseudo-paralytica*.

Dr. Bailey said that in cases of *myasthenia gravis* he had seen the muscles become easily fatigued. This applied not only to the voluntary muscles but to the reflexes.

Dr. Hunt said the symptoms in the early stage of the case, as the diplopia, paresthesia of the tongue and absent knee-jerks, were rather suggestive of the bulbar form of tabes. Dr. Spiller, of Philadelphia, had reported such a case of bulbar tabes about a year ago, in which there was difficulty in deglutition and articulation. The improvement in symptoms may have been due to the mercurialization; such retrogression in the earlier stage was not uncommon.

Dr. Sachs said that when he first saw the case he was inclined to regard it as an example of the bulbar form of tabes, but he had since been compelled to abandon that diagnosis. The knee-jerks, which were at first absent, had returned. There had never been any lightning pains nor eye symptoms nor other evidence of tabes.

Dr. I. Abrahamson called attention to the fact that the patient's speech was still of a jerky character, and that there was twitching of the mouth from time to time. This was suggestive of a recurrence of his chorea.

Dr. Bailey said he did not think it was possible to absolutely rule out multiple sclerosis.

Dr. Sachs, in reply to a question, said there had been no tremor nor nystagmus.

*A Case of Multiple Neuritis.*—This was presented by Dr. Isador Abrahamson. The patient was a woman, who was born in Germany thirty-four years ago. With the exception of an attack of pleurisy three years ago her personal history was negative. Her present illness dated back to February, 1903, when she noticed some weakness in the legs.

especially the right one. In March she had an attack of cough, with expectoration and pain, especially over the left shoulder-blade, and her attending physician told her she had a recurrence of her pleurisy. Three or four weeks later she had an attack of vomiting and diarrhea, with edema of the face and all four extremities; the latter symptoms were not marked; there was some fever. The urine was negative. A "leaky heart" was diagnosed by her physician. She now began to complain of pain, chiefly at night; it was boring in character, involving the outer sides of both legs. There were no local signs excepting tenderness on pressure along the outer surface of the legs. The pains and weakness in the legs progressed, and four weeks later she began to complain of numbness in the hands, especially the right, with beginning weakness on the thumb side more than on the ulnar. There was noticeable wasting in the legs, chiefly on their outer surfaces, and paresthesia in the region of the thighs, legs and feet. During all this time the patient remained in bed, suffering from frequent urination and diarrhea. Her fever lasted about two weeks. The diagnosis made at this time was influenza. Upon attempting to leave her bed she found that she was unable to walk. Dropped feet were apparent, and to a less extent dropped wrist. The physicians in attendance called the condition neuritis and partial muscular paralysis. According to their statement no sensory disturbances were present. The patient stated that she felt at all times the slightest touch, and that she was able to distinguish pin-pricks and hot and cold applications. She felt acutely the application of the faradic current. She was seen by Dr. Rieser on October 1, 1903, who found no sensory disturbances, although multiple neuritis of influenzal origin was diagnosed. The case was referred to Dr. Abrahamson on October 26, 1903. At that time some improvement had already taken place. There was marked motor weakness in both forearms and hands, and some wasting of the right thenar eminence. There was partial dropped wrist on both sides. The deep reflexes were absent; there was some ataxia, chiefly on the right side. The greatest weakness was in the extensors of the forearm, in the flexors of the hand and in the pronators and supinators. No sensory disturbances could be elicited. The heart was apparently normal and the trunk muscles intact. The abdominal reflexes were present.

There was distinct dropped foot, and the patient walked very unsteadily. There was some wasting of the peronei muscles. There were no fibrillary twitchings. The knee-jerks and Achilles reflex were absent on both sides. The feet were cold and somewhat congested. There was tenderness along the peroneal nerve; less along the posterior surface. Decided reaction of degeneration in peroneals. With the exception of slight tactile uncertainty, occurring only at times and not at all constant, there were no changes in tactile, pain or temperature sensations.

The patient was treated with electricity and strychnia and improved rapidly. She was now able to walk alone, although there was still some peroneal weakness.

In view of the history of edema, diarrhea and vomiting, the distinctly peripheral character of the paralysis, the paresthesia, pain, nerve tenderness, etc., the rather slow but progressive character of the onset left little doubt as to the diagnosis, in spite of the absence of objective sensory symptoms. Landry's paralysis, the speaker thought, could be excluded, though there were many points of resemblance. The etiology of the multiple neuritis, upon careful examination and questioning, negatived any metallic poisoning, and influenza had to be assumed as the etiological factor. A few similar cases had been reported by Blocq and others.

Dr. Sachs said if there was one fact that had been learned about multiple neuritis, it was that for some reason which it was difficult to explain sensory symptoms were almost invariably less prominent than the motor. He considered the motor form of multiple neuritis infinitely more common than the sensory. In the early stages of the disease there was usually some sensitiveness to pressure over the nerve, but actual objective sensory symptoms were frequently absent in the most pronounced and indubitable cases of multiple neuritis.

Dr. Leszynsky said he agreed entirely with Dr. Sachs. In several cases of multiple neuritis, however, he had observed slight sensory disturbances in the early stages, which disappeared within a few weeks. In the later stages of the disease he found no sensory symptoms whatever.

Dr. Clark said he had seen a number of Barnes' cases in London, and listened to a discussion upon them. They distinctly represented a form of polyneuritis, involving the motor fibers of the nerve almost exclusively. In the course of the discussion one of the speakers said he doubted whether there were any cases of purely sensory neuritis.

Dr. Abrahamson, in closing, said this was the only case of multiple neuritis he had seen that had not shown at any stage the least objective disturbance of sensibility.

*A Case of Recurrent Peripheral Facial Paralysis.*—This was presented by Dr. Abrahamson. The patient was a man, 32 years old, a hat-maker by occupation. His family history was negative. Six months ago a physician who examined him for a lodge found albumin in the urine. He denies syphilis. He used alcohol and tobacco in moderation. He stated that in the preparation of the felt for hats, mercury, and probably arsenic, was used for shrinking purposes, and that many of his fellow-workmen exhibited tremor and salivation. Personally, he had never shown any symptoms of mercurial poisoning.

The patient's symptoms were those of peripheral facial palsy, of which this was his fourth attack. His first attack was on the right side, and occurred sixteen years ago, all three branches of the nerve being involved. The attack lasted three or four months. His hearing remained normal; there was no otitis. The attack was attributed to exposure. He made a complete recovery; there were no sensory symptoms. His second attack occurred four years later. It was on the left side, and all three branches of the nerve were involved. It lasted about the same length of time as the first. There was no otitis; no sensory symptoms. Recovery was complete. The third attack was also on the left side, and occurred seven years ago. All three branches of the nerve were involved. There were no aural symptoms. The attack lasted four months; recovery was complete.

His present attack dated back to February 3, 1904. It began with pains radiating from the left aural region to the left lower face, and was followed by paralysis of all three branches of the left facial nerve. Hearing was not impaired; there were no evidences of any otitis. The patient also complained of some weakness and a cramp-like feeling in the left hand, especially when grasping objects. There was no headache, vertigo nor vomiting. His mentality was not impaired. There was no difficulty in swallowing, speaking, etc. Micturition and defecation were normal. He had never had diplopia.

Examination revealed a paralysis of all three branches of the facial nerve. The tongue was drawn slightly to the right; the uvula markedly so. Taste was impaired over the left half of the tongue. Hearing was not impaired. The ocular movements and superficial reflexes were normal. There was no ataxia. No evidence of lues. The sensibility,



especially to temperature, was markedly diminished over the left half of the body, excluding the genitalia.

Dr. Abrahamson said the case was particularly interesting on account of the multiplicity of the attacks. As to the cause of the attacks, syphilis was apparently negatived by the absence of any history or findings indicating that disease, the vague nature of the ophthalmoscopic findings (which upon second examination were negative), the completeness of the facial palsy each time, the absence of involvement of any other cranial nerves, and the completeness of recovery without specific treatment. As to the cause of the attacks, mercury, with or without arsenic, was possibly the true etiological factor. The associated hemianesthesia was no doubt of a hysterical nature.

*Nervous symptoms in Three Patients with Azoturia.*—Dr. William H. Thomson read a paper on this subject, in which he stated that it was his routine practice, with all patients who consulted him for nervous ailments, to have frequent examinations made of the urine, for the purpose of determining the daily output of its *normal* ingredients. Repeatedly, in many cases of so-called neurasthenia, the reports would show that the excretion of urea would be only from one-fourth to one-half of what it ought to be, with sometimes a corresponding diminution of the other solids of the urine, and sometimes not, but rather an excess of the other saline ingredients with a marked diminution of urea.

Occasionally, however, he has had patients give a story with a series of symptoms resembling in many particulars those showing deficiency of elimination, but on examination they proved to have a marked excess of both urea and solids, amounting in one case to ten times the quantity of urea of another patient who clinically might have been classed with him as a typical neurasthenic.

To illustrate this condition, Dr. Thompson briefly reported three such cases coming under his observation. The most interesting was that of a young man of 23, who was first seen on December 5, 1903. As he expressed it, he was suffering from a complete nervous breakdown, which came on him suddenly two years ago. He had an unfavorable neurotic family history; his father died of paralysis; his only brother was in an asylum, and one sister, six years older than himself, had attacks which, from his description, might be cyclical insanity. Another sister, 25 years old, was abnormally fat. The patient's story was that when he was 12 years old he had an attack of severe stomach trouble, in which he vomited constantly and became very much emaciated, and was told that his complexion became greenish. He was rapidly relieved of this by stopping all reading and by wearing glasses; he had been compelled to wear glasses ever since, and if by any chance he lost them, he began to feel sick at the stomach. During the past two years he had suffered from attacks of intense nervousness, with total inability to apply his mind to anything that required concentration of thought or attention. He had attacks also of gastric distress, but these were more intermittent. At other times he suffered from insomnia. He had no intestinal symptoms, the bowels moving regularly twice a day. His pulse was slow, weak and compressible. The temperature was normal. Examination showed nothing abnormal in the condition of his heart, lungs or other organs. The pupils were natural; no muscular tremors; the reflexes were normal.

Examination of his urine showed no abnormal ingredients of any kind, but the urea stood at the high figure of 51 grammes. As he was living on a very restricted diet, owing to his dyspeptic troubles, and as he could not take any hard muscular exercise, his output of urea should not have been above 20 grammes instead of 51. This urea excess was also accompanied by an output of total solids amounting to no less than

1,715.5 grains, or 114.37 grammes. Therefore, this patient, who had no fever whatever, no infection of any kind, and no diabetes mellitus, was, nevertheless, excreting more waste products daily than a case of severe typhoid fever. Under appropriate treatment the patient rapidly recovered, and he was now studying to pass a university examination.

In all three of Dr. Thomson's cases, pain in the eyes, especially from reading, was a leading symptom. What connection there could be between these ocular troubles and the marked excess in the excretion of urea and of other solids he could not say, and he was inclined to look upon their occurrence as accidental. His own view about the nature of these cases was that they were related to diabetes mellitus, and he would term them urea diabetes in distinction from saccharine diabetes. He did not venture to guess what the underlying cause of this particular form of systemic waste could be, but following his hypothesis he laid down for these patients the same line of treatment which he would for a diabetic. His notes showed that these patients could not digest starches, and for that reason he largely excluded farinaceous articles from their diet, and then prescribed the antiseptics, which he had treated of more fully in a recently published paper on the medical treatment of diabetes.

In reply to a question, Dr. Thomson said that in none of his three cases were the patients large meat eaters. The first patient said she could not eat meat with any comfort, and rarely touched it. The second patient said she had given up beef and mutton some years ago, because it usually gave her a headache. The third patient was almost an anchorite, and was practically starving himself, as he believed that his stomach was the cause of all his troubles.

PHILADELPHIA NEUROLOGICAL SOCIETY.

February 23, 1904.

The President, Dr. Charles S. Potts, in the chair.

*Two Cases of Tuberculous Neuritis.*—These were exhibited by Dr. D. J. McCarthy.

*A case of Erythromelalgia and a case of Paralytic Chorea.*—These were exhibited by Dr. C. D. Camp.

The case of erythromelalgia was a typical one of this rare disease. The patient was a man aged 36 years, a Russian tailor, married, and of good family history. There was nothing significant in his previous history except that his right foot was frost-bitten fifteen years ago. There was no history of trauma, and he never had any trouble with his left foot. Eight months ago he first complained of a burning and sticking pain in his right foot and ankle. This, he says, was accompanied by swelling, which later disappeared.

Present condition: The patient appears as if in pain. When the right foot hangs down it becomes of a deep red color, and the seat of intense pain; when the right foot is elevated it becomes white and dead-looking and the pain is eased. There is no edema of the foot, and no trophic changes. There is an absence of the turbulent pulsation in the blood vessels of the foot which is often noted in this disease; in fact, the pulsation in the dorsalis pedis artery cannot be obtained. The ball of the great toe is tender to pressure, but there is no other tenderness. Sensation is normal throughout the body. There is no paralysis, and the knee-jerks are normal. The pain is worse when the room is warm. The surface temperature of the right foot is raised by allowing it to hang down, while on the left foot it is lowered.

The second case was one of paralytic chorea, so-called by Gowers. The patient, J. D., was admitted to the service of Dr. Wm. G. Spiller at the Polyclinic Hospital, February 2, 1904. He is a schoolboy, 14 years of age. He has had the ordinary diseases of childhood, but no history of rheumatism. The patient was perfectly well until two weeks previous to his admission, when his father noticed a gradually developing weakness in the right arm. About the same time or a little later slight irregular movements were noticed; these were more marked in the right arm, but were also present in the other extremities. The boy never complained of any pain or numbness in the arm.

Present condition: There are slight choreiform movements in all the extremities. He is well nourished. The right upper limb is very weak, much more than is common in chorea. The grasp of the right hand is very feeble, that of the left is normal. He cannot raise his right arm above his head, and when it is raised by the examiner it drops immediately the support is removed. Both knee-jerks are slightly diminished. Sensation is unaffected, except that there is a slight diminution to touch perception in the right hand.

He was given Fowler's solution, gtt. iii, t.i.d. One week later he was much improved, especially as regards the paresis.

Dr. W. G. Spiller said that the man with erythromelalgia suffered much pain, and that it was almost impossible to keep his hands away from his foot, at which he was picking much of the time. He was found recently with a brass pin trying to draw blood from the foot. Dr. Spiller said that he had decided to have an operation in the case, and that



Dr. Frazier had examined the foot and would amputate the great toe. The patient insisted upon something being done for him. The pain was so great that he could not sleep and he was losing flesh. The case would be reported more in detail later. Dr. Spiller said that the other case was one of the most interesting cases of paralytic chorea he had ever seen. When the boy first came to the Polyclinic Hospital brachial palsy was present, and there were few choreiform movements. The boy was unable to raise his upper limb. The grasp of the hand was exceedingly weak. Not having a history of injury, and there being no tenderness, it was believed to be a case of chorea. The diagnosis has been confirmed, as the boy has nearly regained the use of his upper limb and the movements are more distinctly choreiform.

Dr. Alfred Gordon said that a few days ago he had had the opportunity to see a similar case of paralytic chorea. A girl, 9 years of age, developed chorea, and four days later a paralytic condition of the left arm and leg was noticed, and the question arose in Dr. Gordon's mind as to whether the paralytic condition was due to chorea itself or was the result of poliomyelitis in a mild form, as the paralysis was flaccid. He asked Dr. Camp to speak concerning the onset of the paralysis, namely: Did it precede or follow the chorea, and under what circumstances did the paralysis make its appearance.

Dr. C. D. Camp, in reply, said that the boy's father noticed the loss of motion first, and that the choreiform movements were not then well marked, but have become so since. The paralytic symptoms began before the chorea. Dr. Camp said he had understood that Charcot described the paralytic symptoms as developing before the chorea in some cases.

*A case of Bulbar Myasthenia, with Autopsy.* This was reported by Dr. C. W. Burr and Dr. B. F. Stahl.

Dr. Spiller said he would like to put on record a very interesting case sent to him from Dr. Thornton's clinic. The patient was a woman, middle-aged, who within the past few months had developed the symptoms which she now has. She has had an optic neuritis, almost complete ptosis, and weakness of many of the external ocular muscles, with paralysis of internal ocular muscles. She is unable to swallow liquids without great distress. She has rapid heart beat, showing probably involvement of the vagus. She has had some weakness of the seventh nerves in the upper and lower portions of the face, and there has been some slow reaction to the electric current. She has had some pain in the right upper limb. The diagnosis has been difficult in this case of progressive palsy. There has been no disturbance of speech, excepting that her voice is weak. It is not like a case of meningitis, and the diagnosis that seems probable is that of a lesion in the region of the corpora quadrigemina, involving ocular nuclei, and probably a poliomyelitis, the process extending back beneath the floor of the fourth ventricle.

*Three cases of Paraplegia Dolorosa, with Necropsy.*—These were reported by Drs. W. G. Spiller and T. H. Weisenburg.

*Mental Symptoms Associated with Pernicious Anemia.*—This paper was read by Dr. Wm. Pickett.

## Periscope

ARCHIVES DE NEUROLOGIE

(Vol. 16, 1903, No. 94, October.)

1. Report on the Mental State of a Man Accused of Outrageous Deeds and Actions. RAYNEAU.

2. Care and Treatment of Epileptics in England. FLETCHER BEACH.

1. *Report on the Mental Condition of a Prisoner Under Examination.*—This report, made for the information of the court, the author thinks of sufficient interest to warrant its publication, as it relates to a mental condition not infrequently met with in persons enjoying complete personal liberty, and calls attention to a serious defect in the law which provides no means by which they might be placed where they would be unable to inflict injury and annoyance upon the public. The case under consideration was that of a man 41 years of age, tall and vigorous but bearing some evidences of physical degeneracy. His father in early life had displayed a violent and ungoverned temper, and later moral degeneracy. The subject of the report suffered a sunstroke as a youth, and at 18 began to show signs of mental disturbance when he deserted from his regiment, and attempted suicide when placed in the military hospital. In 1882 we find him an overseer of the Omnibus Company, and under examination by Dr. Du Saulle because he had insulted an opera singer on the stage and threatened to shoot him, alleging that his performance of his part was unsatisfactory. He escaped punishment at this time on the ground that he acted while under the influence of alcohol, but during the period following we find him several times arrested for various offenses, such as cheating and breach of trust. In 1886 he complained to the police of a pretended attack of which he had been the object, but the person accused had no difficulty in having him pronounced insane. He was still allowed at large, however, and soon after married. He developed a passion for absinthe and when under its influence abused his wife and assaulted those about him on trifling pretexts. While game-keeper of Sologne he attacked another keeper who had objected to his reckless use of fire arms, was arrested, again examined and pronounced unbalanced, fined and released. The author continues the history of his various outrages, and draws the following conclusion:—The man is morally insane and not responsible for the acts of which he is accused. On account of his malicious tendencies he should be placed under guards, and not in an ordinary asylum, as it has been proved impossible to keep him with other patients, and on this account he is now again at liberty. Such cases are very numerous and the need for a proper asylum for them should be impressed upon the public authorities.

2. *Care and Treatment of Epileptics in England.*—The author begins with a resumé of the history of the treatment of epilepsy from the time of Hippocrates, and a detailed account of the progress made in England in the study of this disease and the care of those afflicted with it. He states that England is much behind the continental countries in this regard, and only within the last twelve years have colonies for epileptics been established. As there are two classes of epileptics, the sane and the insane, the proper care of both classes make it necessary to separate them. He then continues with an account of the various colonies now established in England, that for imbeciles and epileptics at Langs near Blackburn, that for insance epileptics at Horton Manor, and the first establishment for

sane epileptics, which was founded at Maghall near Liverpool in 1888, by Dr. Alexander and others. The first *colony* for the sane was opened at Chalfont by the National Society in 1894. The patients in these various institutions are employed in different ways, the men in carpenter work and basket weaving, at the forge, or upon the farms and orchards; the women in laundry work, sewing, or house work. In regard to treatment the author emphasizes the importance of constant occupation of some sort which the patients find congenial. This must be wholesome and if possible, out-of-doors, for fresh air and the other surroundings of the epileptic, not only prevent thought of his malady, but supply mental activity and hope, with consequent improvement in the general health, and lessening of the number of attacks. The treatment of epileptic children promises well, as experience has demonstrated that the treatment of the young in colonies gives the best results, for they are pleased with the regular occupation and gain self-confidence. At Chalfont they have twenty-four boys about fourteen years old. They appear well, happy and satisfied. During the day they are employed on the farm or in other work, and in the winter evenings they receive instruction in arithmetic, reading, and other branches. It is estimated that there are 40,000 epileptics in the British Isles, of whom a great part are in workhouses, where they ought not to be. Many of the best cases at Chalfont were those who had been for a short time only in the workhouse, and had slipped into pauperism, not from their own fault, but simply because they could not obtain work.

MR. RICHARDS (Amityville, N. Y.)

#### JOURNAL DE NEUROLOGIE

(Vol. 8, 1903, No. 22.)

1. The Differential Diagnosis of Korsakoff's Disease. S. SOUKHANOFF and A. BOUTENKO.
2. The Syndrome of Korsakoff and General Paresis. DR. DEROUBAIX.
  1. *Korsakoff's Disease* (Continued Article).
  2. *Korsakoff's Disease and Paresis*. Different authors are not in accord as to whether or not the Korsakoff symptom-complex, of loss of memory, especially for recent events, false memories or confabulations, and disorientation, originally attached by Korsakoff to polyneuritis, but now known to occur in other connections, should be considered as constituting a definite form of mental disease. As a contribution to this subject, the author describes the case of a man of 35 years of age, of bad heredity, taken ill two years previously with an apoplectiform attack. Since then he has shown progressive mental failure without confusion or delirium. In September, 1903, he had three epileptiform attacks. Motor power is good, but there is tremor, especially of the tongue. The pupils react but are unequal. Tendon reflexes are "strong." There is aphasia and dysarthria, paragraphia and paralexia, serious loss of memory, and disorientation as to time and place, but no false memories or confabulation. The author thinks that the case is to be regarded as one of general paresis showing Korsakoff's symptom-complex.

(Vol. 8, 1903, No. 23.)

1. Differential Diagnosis of Korsakoff's Disease. S. SOUKHANOFF and A. BOUTENKO.
  1. *Differential Diagnosis of Korsakoff's Disease*.—In a long article extending through two numbers of the journal, the authors urge the claims of the Korsakoff symptom-complex to be recognized as a special disease form, toxic in origin, and usually occurring in connection with multiple neuritis, which latter, however, may be so little marked as to



attract small attention. While most of the cases are of alcoholic origin, it is also due to other toxic agents, and mental symptoms at least closely resembling it may occur in various diseases. The differential diagnosis of the true disease from conditions more or less closely resembling it, is entered into quite at length by the authors, who discuss in this connection the mental symptoms of amnesia, confusion and disorientation as occurring in chronic alcoholism, primary mental confusion (Meynert's amentia), senile dementia, arteriosclerosis of the brain, the apoplexies, brain tumors, cerebral syphilis, general paresis, and hemorrhagic encephalitis. A complete bibliography is appended.

(Vol. 8, 1903, No. 24.)

I. Concerning the Pathological Anatomy of General Paresis. A. MAHAIM.

1. *Concerning the Pathological Anatomy of General Paresis.*—The author defends himself from the criticisms of Debray in Vol. VIII, No. 20, of this journal, denying that he ever stated that it was impossible to admit that the cellular lesions are the primitive ones in general paresis. With regard to perivascular infiltration, he still thinks it characteristic of general paresis, though found occasionally in other mental diseases. In a total of 154 brain examinations among the insane, he has only found this change in two cases certainly not paretics, and in these cases there had pretty surely been syphilis.

ALLEN (Trenton).

NEUROLOGISCHES CENTRALBLATT

(Vol. 22, 1903, Sept. 1, No. 17.)

1. Concerning the Medullated Fiber Constituents of a Normal Brain and the Brain of a General Paretic. K. SCHAFER.

2. Concerning the Anthropology of the Spinal Cord. H. PFISTER.

1. *Medullated Fiber Constituents of Normal and Paretic Brains.*

In an extensive paper the author gives the results of a study of the medullated fibers of the cerebral cortex of a normal brain, and agrees with the findings of Kaes on the same subject. In the study of the brain of the general paralytic the medullated fibers of the following portions of the cortex were degenerated, the nasal frontal convolutions, the inferior parietal lobules, the frontal pole, the second temporal gyrus and the inferior half of the visula, while the rest of the brain seemed normal. In another case the author observed the degeneration was a diffuse one, and he concludes that the medullated fibers of the central cortex in general paralytics may in some cases be wholly or in part degenerated.

2. *The Anthropology of the Spinal Cord.*—Pfister made a series of observations in children on the relative weight of the spinal cord to the weight of the brain and the body, and the alterations during development. His conclusions are as follows: (1) The spinal cord of a boy is at all ages heavier and longer than that of a girl of corresponding age; (2) In relation to the brain the spinal cord of a boy is at birth lighter than that of a girl. In children of the same age and sex a heavy brain is always accompanied by a heavy spinal cord. During life the proportion of the weight of the spinal cord to the weight of the brain in both sexes varies in a similar manner. In the newborn the proportion is 1:100, while in the adult it is 1:50; (3) The spinal cord weighs at birth 3 to 34 gr., and increases in weight about eight times, especially during the first two years of life, the increase becoming less later on; (4) In the newborn 1 gr. of weight of spinal cord equals 14 cm. of body length. As age advances this proportion changes to 6.2 cm. of body length; (5) The aver-

age length of the spinal cord in the newborn is about 14 cm., and increases to about 45 cm. in the adult; (6) In the newborn the relative length of the spinal cord to the body length is about 29.5 per cent., but this falls to 25 or 26 per cent. at the end of the first year.

(Vol 22, 1903, Sept. 16, No. 18.)

1. On the Condition of the Muscle and Other Reflexes of the Face in Paralytic Dementia. W. V. BECHTEREW.
2. Concerning Some Supposed Toxic and Therapeutic Peculiarities of the Blood Serum of Epileptics. G. SALA and D. ROSSI.
3. The Higher Patellar Reflex and Its Meaning. L. STEMBO.

1. *Reflex of the Face in Paralytic Dementia.*—Bechterew in this article simply calls attention to the fact that the various muscle and nerve reflexes may be greatly exaggerated in paralytic dementia.

2. *The Blood Serum of Epileptics.*—The authors criticize Ceni's work and point out that his experiments were wrongly conducted, as the patients were under the influence of bromides immediately before and during the experiments, and that the serum treatment was not carried on long enough. The authors carried out their experiments with these errors in view. They obtained their blood serum from epileptics who had been for some time without medicinal treatment. The injections were made in the gluteal region. A record of the cases is given. Their conclusions are as follows: (1) The injection of the epileptic blood serum had no beneficial effect on the course of the disease. (2) There were no toxic or other symptoms noticeable. The symptoms subsequently yielded to the bromide treatment.

3. *Patellar Reflex.*—Stembo adds to the already large variety of reflexes by describing a reflex which seems to be nothing else but the patellar reflex in a middle form, obtained in the identical manner, and under the same pathological conditions.

(Vol. 22, 1903, Oct. 1, No. 19.)

1. A Contribution to the Study of the Course of Some Spinal Tracts. L. V. DYDNSKI.
2. Regarding the Corneo-Mandibular Reflex. J. KAPLAN.
3. Concerning Veronal. O. MATTHEY.

1. *Spinal Tracts.*—The case was one of transverse myelitis of the fifth and sixth dorsal segments, of five months' duration. A study was made by the Marchi method. Some of the results are as follows: (1) Some of the fibers of the posterior columns pass directly to the cerebellum through the restiform body. (2) Some fibers from the direct cerebellar tract end in the nuclei of the posterior tracts. These fibers seem to be fibers belonging to the posterior columns, which instead of passing upward in these tracts join the direct cerebellar tract directly from the posterior roots. (3) Gowers' tract is traced upwards. Some of the fibers end in the cells of the inferior olive, others join the restiform body. They terminate in different places, and are traced through the zones where some fibers decussate at the anterior medullary velum, while the direct fibers seem to join the median fillet and go to the thalamus. Some of the fibers go to the posterior corpora quadrigemina, while others pass to the cerebellum by means of the middle cerebellar peduncles. (4) Some degenerated fibers in the ventral columns of the cord pass upward to the olives. These probably represent Helweg's bundle. (5) Below the seat of the lesion the comma tract was found to be degenerated; in the lumbar region the oval field of Flechsig, and in the sacral region the triangular field of Gombault and Philippe.

2. *Corneo-Mandibular Reflex*.—Kaplan criticizes Von Solder's interpretation of the reflex he described.

3. *Veronal*.—The author used veronal in a number of cases of mental irritability, and concludes that it is an excellent and a safe hypnotic and sedative. It should be given in doses of 5 g. at a time, and no more than 3 g. per day.

(Vol. 22, 1903, Oct. 16, No. 20.)

1. The Abductor Reflex. R. SCHÜLLER.
2. Contribution to the Knowledge of Circumscribed Cortical Lesions of the Motor Area in Human Beings. H. LEVI.

1. *The Abductor Reflex*.—By tapping the condyle of the ext. femoris a contraction is obtained in the tendon or fascia lata, the gluteus medius, and sometimes in the anterior part of the gluteus maximus. Sometimes an abduction of the thigh is obtained. The author thinks this reflex has its center in the fourth, fifth lumbar, and first sacral segments.

2. *Cortical Lesions*.—The author records a very interesting case of a man 28 years old who was stabbed with a sharp knife 1.5 cm. broad, which penetrated 5 cm. into the head. The injury was in the upper motor region in the leg center, and the wound also involved the posterior central convolutions. Immediately after the injury the knife, which was still sticking in his head, was removed, when an immediate paralysis of the left arm was noticeable. The man did not lose consciousness at first, but became unconscious before he was operated upon. After operation the paralysis of the left arm persisted, and there was also beginning weakness in his left leg. The face was not involved. Spasm was soon noticed in the left leg. Examination some days afterward showed a spastic condition of the left arm and leg. All the reflexes were increased. Babinski's sign was present, atrophy became marked in both extremities, ataxia was present in both limbs, and there was diminution in the sense of touch and pain, besides a loss of the sense of position in the affected arm, and astereognosis. The paralysis gradually disappeared and the other symptoms improved. The author explains the paralysis of the arm, the sensory symptoms including the astereognosis and ataxia by a subcortical destruction of associated fibers, but he does not attempt to explain the cause of the atrophy.

(Vol. 22, 1903, Nov. 1, No. 21.)

1. The Etiology and Symptomatology of the Intermittent Claudication. S. GOLDFLAM.
2. The Silver Impregnation of Nerve Fibrils. M. BIELSCHOWSKY.
3. A Case of Syringomyelia with Cheiromegalia. A. SCHITTENHELM.

1. *Intermittent Claudication*.—Goldflam calls attention to the prevailing theories of this affection, these being principally hereditary. He quotes cases of his own where in one family two brothers had a general arteriosclerosis, the arteries of the lower limbs could not be felt. Both were diabetic and neurotic. A sister and the mother also had arteriosclerosis. He has still another such instance of a man who had myasthenic symptoms, and who also had a feeling of numbness in his lower limbs.

2. *Silver Impregnation of Nerve Fibrils*.—The author in a previous number of this journal described a new method of staining neuro-fibrils. This method he now modifies and considers better than the first. The article is such that it cannot be satisfactorily abstracted, and we refer to the original.



3. *Syringomyelia with Cheiromegalia*.—The author records a case of syringomyelia in a woman whose hands were considerably enlarged. The term cheiromegalia has been applied to this symptom by Hoffman and Marie. X-ray plates were taken in which it was shown that not only were the bones of the hand normal in size, but in some places they were atrophied, and the author concludes that the hypertrophy is due to the enlargement of the soft tissues.

(Vol. 22, 1903, Nov. 16, No. 22.)

1. Contribution to the Diagnostic Meaning of the Lid-Closing Reaction of the pupil. A. WESTPHAL.
2. On the Question of the Construction of the Nerve Cells (What Are the Nissl Corpuscles?) C. CHENZINSKI.
3. A Contribution to the Knowledge of the Brain of the Bat, Particularly of the Cortico-Motor Tract. L. MERZBACHER and W. SPIELMEYER.
4. A Case of Isolated Agraphia and Amnesic Inability to remember. W. ERBSLÖH.

1. *The Lid-Closing Pupil Reaction*.—Westphal records the case of a man 57 years old who fell on his head and showed symptoms of paraphasia. The left oculomotor nerve was paralyzed in some of its branches, the right was normal. The left pupil was enlarged and did not respond to light, but did not respond to the lid-closing reaction. The pupil became smaller and slowly returned to its normal size. This sign gradually disappeared as the light reaction returned. The author believes that the reaction is obtainable when there is the slightest disturbance of the light reaction, and is a valuable early sign, as in tabes or paresis.

2. *Nissl Corpuscles*.—In a very important contribution the author shows what the Nissl corpuscles are. Instead of making transverse sections of the cells of the anterior horns, he made longitudinal sections, both of the spinal cord of both man and animals. The cells of the ox were typical. Instead of seeing the usual chromophylic substances, these were distinguished by their absence. What seemed to be fibers stained blue (thionin stain) running longitudinally, some few crosswise, and others deviating from the nucleus were seen. These fibers were more numerous directly near the nucleus. The cells of man showed the same picture. Cross sections stained in the usual manner showed the same picture. The author concludes that the Nissl corpuscles are nothing but cross-sections of what might be called fibrils, which are normal constituents of the cell.

3. *The Cortico-Motor Tract of the Bat*.—The authors in studying the brain and cord of the *Vesperugo noctula* found a tract of fibers running from the pyramidal decussation below the facial nucleus, through the pons, passing near the anterior commissure to the corona radiata and the cortex. They think that it is either a cortico-bulbar tract without a spinal ending, or that there is besides the cortico-bulbar tract a cortico-spinal tract which has not been differentiated.

4. *Isolated Agraphia*.—The author records a case of a woman 63 years old, previously healthy, who without any signs of an attack found that she could not write. This was the only aphasic symptom she had, as she could talk well, see well and perform all functions. Her memory for recent events was poor. She could not write at dictation, but could copy readily. This disappeared in eight days, the mental symptoms lasting six weeks, then turning into depression. The author believes that the cause of the agraphia was the inability of the patient to recall optical memories, and was part of the psychical symptoms.

WEISENBURG (Philadelphia.)

## REVUE NEUROLOGIQUE

(Vol. 12, 1904, March 15, No. 5.)

1. Some Considerations Bearing on the Neurone Theory. J. DEJERINE.
2. Two Cases of Flaccid Paralysis Due to Compression of the Pyramidal Tracts Without Degeneration, with Babinski Phenomena and Absence of the Skin and Tendon Reflexes. P. MARINESCO.
3. The Perception of Trepidation. P. BONNIER.

1. *Considerations of the Neurone Theory.*—Dejerine writing in support of the neurone theory, emphasizes the fact that it is founded on the experimental and pathologico-anatomical study of the secondary degenerations and not on histological investigation. The secondary degenerations cease abruptly at the termination of the neurone, in immediate juxtaposition to the cells which represent the beginning of the next neurone, these cells remaining intact. The demonstration of the neuro-fibrillæ in the nerve cells by Apathy and Bethe seemed to point to a continuous communication and intercommunication between various cell groups of the central nervous system, so that the interrupted flow of nerve impulses might be likened to the circulation of the blood. Nissl on purely theoretical grounds has formulated the theory of "nervous gray" matter, suffered to subserve a similar function of transmission. Dejerine asserts that the results of the recent investigations of Ramon y Cajal once more brings histology into harmony with the theory of the neurone. Cajal has by a new method demonstrated the relation of Golgi's network (end-arborizations) to the ganglion cell. These axis cylinder terminals end in immediate relation to the cell wall, but without penetrating the latter. In other words, they are contiguous in their relations to the cell, and are not continuous with the cell contents in the sense of the neurofibrillæ. Reference is also made to those cases of apparent autogenic regeneration of nerve fibers after permanent separation from the trophic center, which are sometimes adduced in refutation of the neurone theory. These cases are explained on the theory of "recurrent sensibility" and "recurrent anastomosis."

2. *Two Cases of Flaccid Paralysis.*—Marinesco reports two cases of flaccid paralysis with loss of the skin and tendon reflexes, in which Babinski reflex was present. One patient had a capsular hemiplegia, 40 days old, the other a compression of the cervical cord of several months' duration. In both patients histological examination of the pyramidal tracts and the large pyramidal cells of the Rolandic area was entirely negative. The functional conductivity of the pyramidal tracts was nevertheless abolished, due probably to chemical changes in the neurofibrillæ of the axis cylinders. The author considers the Babinski reflex to be of cerebral origin, and to represent a functional disturbance of the pyramidal tracts not necessarily associated with organic changes.

3. *The Perception of Trepidation.*—A discussion of the vibratory perception as a part of the general sensibility, and the relation of periosteal sensation to the paracousis of Weber.

(Vol. 12, March 30, 1904, No. 6.)

1. The Direct Pyramidal Tract. M. and MME. DEJERINE.
1. *The Direct Pyramidal Tract.*—A critical study of the direct pyramidal tracts, their mode of origin, course, relations and terminations. The essentials of 11 cases of cortical and subcortical disease, with a subsequent atrophy of one of the pyramids of the medulla, are included, each case accompanied by serial illustrations. The writers regard the pyramids of the medulla as being composed exclusively of fibers from the cerebral cortex. The differences in the size and shape of the direct

pyramidal tracts is to be ascribed directly to variations in the pyramidal decussation.<sup>2</sup> In 1898 Marie and Guillain described two types of degeneration of the direct pyramidal tract, a *type cerebrale* and a *type mesencephalique*, the one depending on a lesion in the cortex or subcortex, the other due to a lesion in the mid-brain. In that of cortical origin the degeneration of the direct pyramidal tract was small and insignificant, while the degeneration of the direct pyramidal tract of mesencephalic origin was larger, of a crescent shape, and could be traced through the dorsal region of the cord. The Dejerines show quite clearly by numerous cases and illustrations the fallacy of this view, and that the degeneration of the direct pyramidal tract of the so-called *type cerebrale* and *type mesencephalique* is due to nothing more than to natural variations in the pyramidal decussations.

J. RAMSAY HUNT (New York).

#### MISCELLANY

A NEW ANALGESIC TRIGEMIN. Overlach (Berl. Klin. Woch. Vol. 40, No. 35).

This new remedy is a chemical derivative from pyramidon, produced by the action of butylchlorhydrate on the latter. Clinical tests with this drug have lately been made by Overlach, which seem to demonstrate that it has a specification on the painful affections of the cranial nerves. It does not produce any gastric irritation, and has no effect on the heart, as the two constituents neutralize each other. It can therefore be employed in organic heart disease. Favorable effects were observed in headaches from exertion, in those from influenza, alcohol, migraine, etc. It is also of particular value in occipital neuralgia and facial neuralgia, both in extensive and localized types, and in toothache. The adult dose is from 0.5 to 1.2 grams; a moderate dose once or twice daily is usually sufficient.

JELLIFFE.

ATROPHY OF HAND MUSCLES. D. I. Wolfstein (Jour. Amer. Ass'n, April 9, 1904.)

The writer reports a case of a woman, age 27, showing (a) isolated atrophy of two thumb muscles, sub-acute in its beginning, showing so far as the limited time of observation will permit any inference, no progressive tendency; (b) definitely localized dysesthesia. Pain in the right arm had been noticed since her twelfth year. The arm seemed weaker. There was a localized atrophy of the right thumb, with slow reaction to both faradism and galvanism. Cramps in the fingers of the right hand, causing a stiffening of the fingers, had been noticed for five years. Over an area from the internal condyle to pisiform bone there was marked thermo-anesthesia with isolated areas of analgesia, anesthesia and hyperesthesia. In no other parts of the body was either motor disturbance or dysesthesia found. There was no increase of reflexes. The preservation of tactile sensibility in this case makes a diagnosis of syringo-myelia difficult, an invasion of the posterior columns by the gliosis or cavity formation being a late, not an early symptom. This case comes under the class of univadicular palsies, and the root involved is the first dorsal, in such a way as to exclude the sympathetic fibers for the pupil. The absence of any increase of reflexes, so frequent in syringo-myelia, may indicate that the cord is intact. In these cases there is no knowledge on the part of the patient of sensory disturbance, whereas in peripheral neuritis subjective sensory phenomena are the rule. Buzzard thinks this absence of subjective sensation of numbness, or tingling, may prove a differential diagnostic point between root and peripheral neuritis. He quotes an ex-



periment on the macacas of cutting a single spinal root which produced a disturbance of skin sensation to some extent dissociative. Over a limited skin area, much smaller than the total skin field of the root, an abolition of heat sensitivity occurred, without abolition but with some concomitant impairment of actual sensitivity. In the skin of the macacus the pain field and heat field of a single sensory nerve root, are less extensive than is the "touch field" of the same root. This case of the writer corresponds to this description and makes the site of the lesion the junction of the eighth cervical and first dorsal to form the outer cord of the brachial plexus, but attacking a single nerve only, viz.: the first dorsal. The lesion must be beyond the posterior root ganglion as evidenced by the absence of hespat.

NOYES (New York).

THROMBOSIS OF THE MIDCEREBRAL ARTERY, CAUSING APHASIA AND HEMIPLEGIA, WITH REMARKS ON CEREBRAL SKIAGRAPHY. C. W. Burr and G. E. Pfahler (Amer. Jour. of Med. Sciences, Feb., 1904).

The case is of interest chiefly because of the advance in cerebral skiagraphy as showing the possibilities in the differential diagnosis between organic brain lesions causing hemiplegia and those due to uremia. The patient, a woman, age 47 years, had a right hemiplegia, with aphasia. Her only utterance was, "No, no, no. No, no." She was not completely word-deaf, although there was apparently some impairment. She died of uremia, and a necropsy was made the same day. There was extensive destruction in the region of the distribution of the midcerebral artery. The lower halves of the ascending frontal and ascending parietal convolutions were completely destroyed—the upper halves somewhat atrophied. Nothing remained of the island of Reil and only a small portion of Broca's convolution. The supramarginal, angular and first temporal convolutions were destroyed. A part of the second temporal was also destroyed. After the necropsy the brain was replaced and two skiagraphs taken, one from each side. The lesion showed on both negatives, but much more plainly on the affected side. It is evident that the Roentgen rays will be of considerable value in the diagnosis of large cerebral lesions such as new growths, softening, hemorrhage and abscess.

C. D. CAMP (Philadelphia)

## Book Reviews

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VORLESUNGEN ÜBER DEN BAU DER NERVÖSEN ZENTRALORGANE DES MENSCHEN UND DER TIERE. L. EDINGER. 7th Edition, Vol. I. F. C. W. Vogel, Leipzig.

It seems superfluous to call attention to this work, which for so many years has been the leading authority on comparative neurological anatomy, but this new edition departs in so many particulars from its predecessors that special note seems desirable.

In the first place, we note that the work promises to be in two volumes instead of one, this the first half equalling in size the entire fifth edition. Further, an immense number of new illustrations and schematic drawings enhance the pedagogic value of the work very markedly; many of these new illustrations are of most excellent execution, the topographical relations being shown largely in relief.

The first volume deals more particularly with the higher forms, reserving the lower forms for the second volume.

We hope for a generous recognition of this entirely rewritten and rearranged edition.

JELLIFFE.

ERBSYPHILIS UND NERVENSYSTEM. VON DR. JOHANNES BRESLER. Verlag von S. Hirzel, Leipzig.

As the author states in the preface, this work is intended as a short reference book upon hereditary syphilis of the nervous system, and is a repetition of the author's compilation in Schmidt's Jahrbuch. Such a work as this, although it contains no new contribution, is of great value, not the least being its complete bibliography on hereditary syphilis of the nervous system.

One is struck with the large number of diseases which are due to hereditary syphilis. According to Rumpf, 13 per cent. of the diseases of the nervous system are due to this cause. A large number of cases of juvenile general paresis are cited; these cases are not so rare as has been heretofore believed. Spinal meningitis is rare. M. Sachs is quoted as having never observed such a case, though a number of cases have been recorded, including one of hemorrhagic pachy-meningitis by Spiller. Hereditary syphilis of the third generation is discussed, and the author details a short history of eighteen cases where the history of syphilis is well authenticated.

T. H. WEISENBERG.

## News and Notes

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APPOINTMENTS.—PROFESSOR FRANZ NISSEL has been appointed Director of the Psychiatric Clinic and Professor of Psychiatry at Heidelberg.

PROFESSOR OTTO BINSWANGER has received an appointment as Director of the Clinic of Insanity at Bonn.

DER ALKOHOLISMUS, published by Ambrosius Barth of Leipzig, will be known as the Zeitschrift zur wissenschaftlichen Erörterung der Alkoholfrage.

DR. H. SVENSON has been appointed Professor of Psychiatry at Upsal.

DR. ADOLF MEYER has been made Professor of Psychiatry at Cornell Medical College.

DR. GEO. E. PETTEY is to open a branch institution in Denver, Col., for the treatment of drug habitués along the same successful lines as are followed in his Retreat in Memphis, Tenn. He further contemplates a further extension of his work in an institution at Atlantic City, N. J.

THE AMERICAN NEUROLOGICAL ASSOCIATION meets at St. Louis at the Planters' Hotel, instead of in the World's Fair Grounds as originally planned. The sessions will last from 9 A. M. to 1 P. M. daily. A general invitation to attend is extended to the medical profession.

DR. JOHN PUNTON, Superintendent of the Punton Sanitarium or Home for Nervous Invalids at Kansas City, Mo., is adding a large addition to the Sanitarium building in response to an increased demand for accommodations by patients. There is also being built a large extension to the verandas, which will be used by the guests for places of recreation. The management of the Sanitarium appreciates the support received from the medical profession, and has great confidence in the continued success of the institution.



THE  
**Journal**  
OF  
**Nervous and Mental Disease**

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**Original Articles**

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AN ACCOUNT OF THE CARE OF THE INSANE IN BELGIUM,  
AND PARTICULARLY THOSE IN THE COLONY OF GHEEL

BY PAUL MASOIN, M.D.,

OF GHEEL,

PHYSICIAN TO THE COLONY OF GHEEL

The recent international Congress on the care of the insane, which was held at Antwerp in September, 1902, was made the occasion of a discussion concerning the care of the insane in the various countries of Europe. The interest of the Congress lay chiefly in the fact that it brought together, face to face, the upholders of the asylum system and those who support the system of the family colonization of the insane. Anyone who is acquainted with the method of caring for the insane in Belgium will readily understand why the opinions put forth were so contradictory, why the discussions were so exciting, and why in the end some became alarmed.

But if, on the one hand, the asylum system was the object of lively recriminations, it may be said on the other hand, that there was quite as much interest of another kind shown concerning the methods of colonization among the insane, as it exists in our country in the colonies of Gheel and Lierneux (in the province of Liege).

I comply with pleasure to the request of my esteemed confrère, Dr. Jelliffe, by preparing for THE JOURNAL OF NERVOUS,

AND MENTAL DISEASE, a paper upon the Belgium system. The visit which he made to Gheel last year,<sup>1</sup> and which I am happy to learn made a good impression upon him, indicates the interest felt in our work. Moreover, the considerable increase in the colonization system in the United States during the last few years, will perhaps lend some interest to the article other than that of simple curiosity.

A few words first upon the care of the insane in Belgium. With certain legal formalities, anyone in Belgium may open and manage an asylum; therefore one must not be astonished to learn that of the 47 asylums devoted to the care of the insane, only three belong to the state; it is true that in these three there are 3,100 patients, out of a total of 15,400 insane cared for in the whole kingdom. (On December 31, 1901, the population of Belgium was nearly seven million inhabitants.)

From this total of 15,400 must be deducted 2,000 insane who are cared for at home under certain regulations, which are in vogue in different countries of Europe and which are known as the home confinement of the insane. The value of this method of care is open to question, and many physicians consider it a poor make-shift for restraint.

Of the 3,100 patients placed in State institutions, about 1,800 are to be found in the Colony of Gheel; the Colony of Lierneux, which is an institution of the provinces, has about 450 patients.

The private asylums of Belgium contain nearly 10,000 insane. These establishments are for the most part the property of religious corporations which manage them. In construction and management the institutions serve excellently the end which justifies their existence, namely, the prevention of the insane from self-injury. But this should not be the only aim of establishments for the insane. "The asylum is a means of cure," said the great Esquirol; but the asylums of Belgium, at least the greater number of them, fill, only in a secondary way, this great need, of hospital treatment. The burden of service for hundreds of incurables, the lack of professional instruction on the part of the guardians, the method of recruiting the medical corps of the asylums, have time and again called

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<sup>1</sup>A Visit to Gheel. *Medical News*, July 23, 1904.

forth the liveliest recriminations from Belgium physicians, as well as from those of other countries. There has been no lack of material for sharp discussions of this subject, and no lack of discussion.

But we will set all questions of controversy aside, and proceed to the principal object of this article, which is to describe the organization of Gheel, the life led by the patients there, and their relation to the sane population of the colony. We shall see that there are certain classes of patients to whom the regime of Gheel is especially adapted.

Gheel, as is well known, is a very ancient institution. One must go back ten centuries to discover the origin of customs which are perpetuated to this day. According to the chronicles of historians, a young Flemish girl, Dymphna, was be-



Fig. 1. A View of Gheel. Church of St. Dymphna.

headed here by her own father, for having repulsed his criminal armours. Her tomb, after the fashion of many others, became an object of veneration. People sick of all sorts of diseases were carried there. How and when this devotion became specialized it is impossible to say. Without doubt some one who was "possessed"—and there were many of them everywhere at that period—must have recovered his reason at the tomb of the Saint of Gheel, and this would naturally cause a fresh influx of visitors. It is quite possible to believe that the epidemics of demoniacal excitement, the fruit of the vivid superstitious beliefs of the Middle Ages, furnished Gheel with a goodly contingent of those "possessed with evil spirits," and among them were mingled many idiots, like those we see today, but who in the ignorance and naiveté of those days were considered to be struck by the divine hand. Moreover



the treatment of the insane, which conformed to the then prevailing idea of mental diseases, consisted for several centuries of nothing whatever besides carrying on religious observances, penances, prayers and sometimes even exorcism. The "possessed" and the insane who came to Gheel to implore divine mercy lived in a retreat belonging to the church, during the time that the religious rites connected with the relic were being carried on in their behalf. But the number of sufferers that found shelter in this primitive infirmary forced the later arrivals to seek refuge with the inhabitants. This is the probable origin of the Colony.



Fig. 2. A Street in Gheel. Conveyance for Patients.

For several centuries the care and surveillance of the insane devolved upon the clergy, who in accord with the local administration, found work for some in behalf of the afflicted, as well as of the inhabitants. After many vicissitudes, especially those caused by the events which took place in France toward the close of the eighteenth century, the colony of Gheel was brought into closer relations with the prevailing ideas of the time. Throughout the last century it remained a local institution; and it was not until 1851 that the State assumed control of this institution and regulated its various affairs.

Like all institutions for the insane in Belgium, the colony is within the jurisdiction of the minister of justice. Outside of special regulation it is subject to the laws (of 1850 and 1874) and decisions which control the government of the insane in other establishments in the kingdom. The inspection and the overseeing of all that concerns the colony is intrusted to the "Superior Commissioner." Concerning the terms of the regulations, the prerogatives of this commissioner are many. In all cases as a last resort discussions are referred to the Minister of Justice and the Director of the Colony.

An hierarchial authority of a lesser order is represented by the "Permanent Committee of Gheel." The Commission is chiefly concerned with the placing of the indigent insane, because those who are boarders are free to indicate the house of



Fig. 3. Avenue of the Infirmary at Gheel. Directors' Office to Right.

their choice. The methods by which vacancies are filled in this commission depend somewhat upon the local state of affairs. The rights of the medical director, who should be the only one to have authority in placing the patients, are not as full as they should be. Fifty years ago Parigot, the first medical inspector of the colony, pointed out the fact that this situation was really unjust to the patients as well as to those who took care of them. The different directors who followed him and who have been the most faithful friends of Gheel, have repeatedly urged the reform that was indicated by common sense, but which ran counter to certain local feelings which were based upon a lack of understanding of the real needs and interests of the insane in the colony.

At the head of the colony there is the Medical Director,

who is at the same time chief of the medical service, as well as of the administrative service. He also has charge of the Infirmary. Concentration of authority is necessary in an institution such as this.

From the standpoint of the medical service the colony was divided into four sections of about equal importance as far as their extent and the number of patients was concerned. As to the distribution there is often just complaint that certain patients are sometimes placed at a considerable distance, as much as ten kilometers or more from the center. But this state of affairs also depends upon a committee that has in charge the placing of patients: and, as we have said, the medi-



Fig. 4. Infirmary at Gheel.

cal element is not represented upon it as it should be. At the head of each section there is a physician who devotes his time exclusively to the care of the insane. Outside of this specialty and of expert medico-legal work, all other practice of medicine is formally forbidden. The work of these men merits the highest praise. The patients who can be cured must be visited at least once a week, for the incurable a visit once a month is all that is required by the rules. At each visit the physician signs a check-card which is kept in the home of the patient. Every morning the different physicians hand into the medical director a short report in which they mention the section of the district visited upon the day before, and indicate anything of importance that they think should be brought to the notice of the director. Each physician, in his work of inspection and oversight, is attended by two "section-guards," whose



help is very appreciable. They fill in their section the work of overseeing the Infirmary and of going over their quarter each

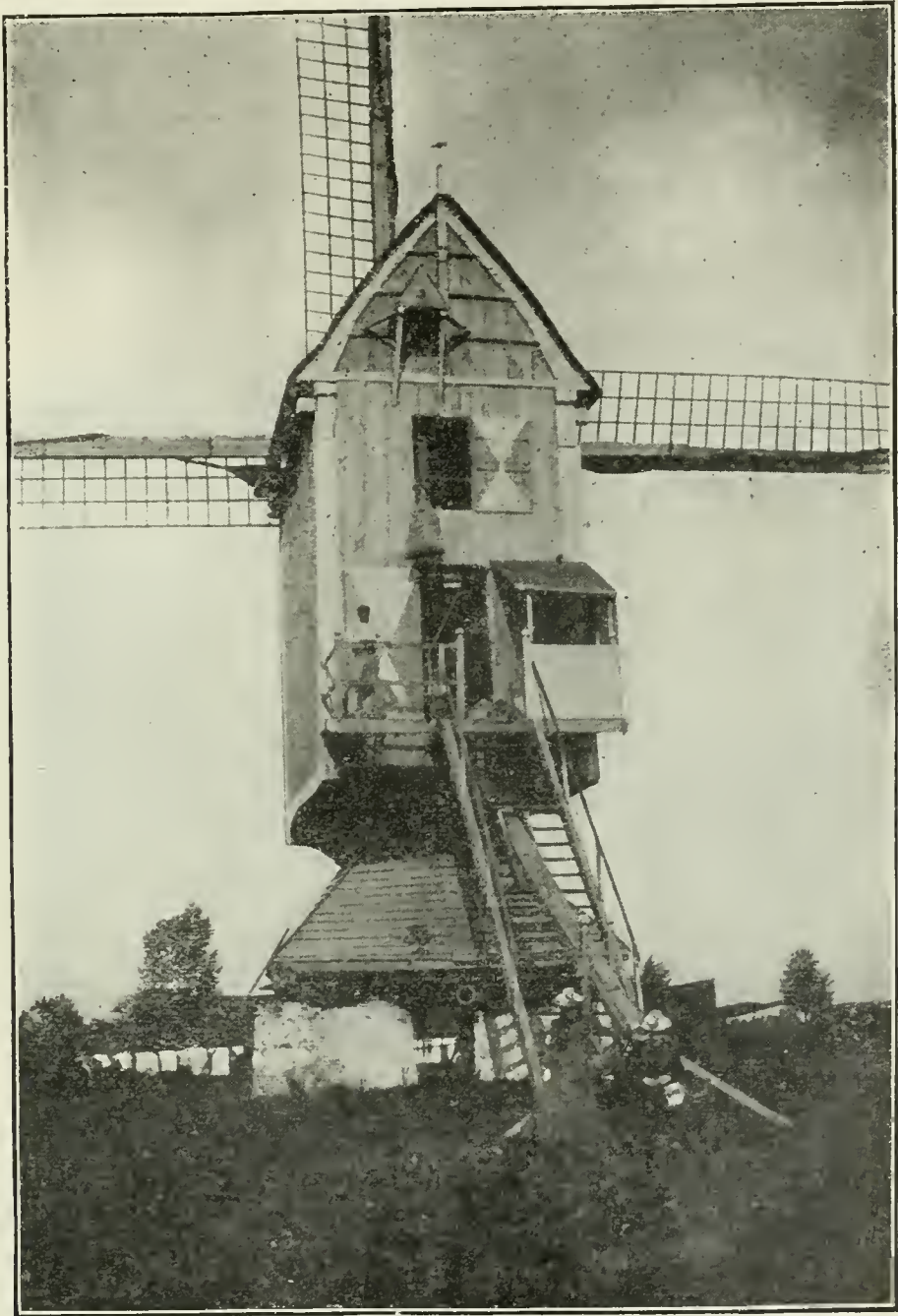


Fig. 5. A Belgian Landscape.

day to see that the general and special instructions that have been given are carried out. Their daily route must be reported each evening to the physician of the section, and thus to the

medical director. Thus, each morning the latter finds himself acquainted with all that has happened in the colony on the preceding day.

Any inhabitant of Gheel may have permission to take an insane person to board, if it be granted to him by the proper authority, which, like that of the placing of the insane, is vested in a local committee, but this permission is sometimes too freely given and without proper investigation. The greater number of inhabitants who are allowed to receive the indigent patients are limited to the care of two insane, as the maximum



Fig. 6. The River Nethe at Gheel.

number authorized. The rule of the colony requires that the rooms of these patients should have 15 cubic meters of air space, but this minimum figure is generally exceeded in the newer buildings. There are a good many prohibitive rules for the home occupied by the insane, such as for instance, there must be no open wells, no bars on the windows of the bedrooms occupied by the patients, there must be a screen around the fire in all the houses occupied by epileptics or by the demented.

All the bed linen and clothing, which, however, have no distinctive mark, are furnished by the administration, but their care and preparation of their food rests with those who take them to board. With the exception of the unclean patients, all the insane take their meals at the family table, their food is generally the same as that of the family in which they are placed. Naturally, it is not to be supposed that the peasants' food is remarkable, either for its cooking or the variety of the menu, and it would not stand comparison with the food in asylums. The country fare consists largely of carbo-hy-



Fig. 7. The Marketplace at Gheel, with Church of St. Armand.

drates, which are often in too high proportion, (fats and potatoes) with an insufficient quantity of nitrogenous food; but one must not lose sight of the fact that the greater number of these very poor patients have been accustomed to just such fare from their infancy. Custom has enabled their bodies to correct any untoward consequences.

It is quite impossible to look after this matter of diet with anything like a system of close control and minute observation. However the section guards do the best they can by making rounds from time to time at noon, in order to find out



whether the food furnished is sufficient in quantity and of suitable quality. We must also add that in different parts of the colony there are bath houses, to which detachments of the insane residents go each week. They are weighed there and the value of their daily fare and consequent good health is judged by the loss or the maintenance of their weight.

When one of the patients is taken sick or meets with an accident that can not be properly cared for in his home, he is transferred to the infirmary. The same thing happens if his mental condition is for a certain time such as to call for watchfulness and special care (such as excessive agitation, acute melancholy, epileptic delirium, etc).



Fig. 8. Farm of First Rank for Patients.

Except in such cases, the insane are cared for at home when they are taken sick, and it is under such conditions that one learns to appreciate the true qualities of the nurses, who are undoubtedly honest people, anxious to do only that which is for the best; but hampered by lack of education and above all of any special training as sick nurses. This state of affairs leaves much to be desired, but to fill the need, Dr. Peeters, the real Medical Director of the Colony has hitherto had a course of public lectures on physical and moral hygiene. These lectures have been brought together to form an interesting and readable book on popular medicine. The lectures have recently been resumed with great success by Dr. Meens, who

gave an interesting account at the Congress at Antwerp, on the professional instruction of nurses.

A real oversight is thus maintained in the matter of the health and well-being of all the patients. We might say here, that neglect or force or violence on the part of any of the nurses towards the patients is of the rarest occurrence, and knowing the nature of the people of Gheel, we can pretty safely say



Fig. 9. One of the Patients.

that if any such reprehensible things took place, it would not be long before they were known to everybody.

The use of all means of restraint is formally forbidden, with the single exception of hand-cuffs, which may be used on those patients who are inclined to hurt themselves or tear their clothes. Gentleness and patience on the part of the nurse, and perfect freedom for the insane patients, form the rules, which after persevering efforts have become the accept-

ed thing by the nurses themselves, though they were for a long time accustomed to more secular methods.

The undoubted abuses that existed some forty years ago, could not occur today. The sharp criticisms to which Gheel has been subjected have been shown to be without foundation. And if a much-to-be-regretted spirit of antagonism exists, of which we caught echoes at the Antwerp Congress, we can attribute it only to an absolute ignorance of the real conditions of the insane at Gheel.



Fig. 10. Interior of Room Occupied by Patients.

We must add here that for eight years there has been a laboratory for the purpose of studying the results of autopsies. Dr. Havet, who is the chief of this service has been chiefly occupied with researches on the nervous system, in its relation to mental alienation.

I would now like to say a few words about the insane themselves and the life they lead at Gheel. By the terms of one of the articles in the regulations of the Community of Gheel, in-



sane people of all conditions are welcomed there, except those that must be continually kept under constraint, and those with suicidal, homicidal or incendiary tendencies, those in whom the attacks were very frequent or whose malady was of such a nature as to disturb the peace or offend public decency.

The insane placed here are, therefore, chosen patients, to whom there can be fearlessly accorded a great deal of liberty of action. They go out alone, and mingle with the family, whose life they share. They make themselves useful as far



Fig. 11. A Farm of the Second Class.

as their strength and intelligence and liberty will permit ; many are good farm-hands, others work in shops or help their nurses at home. The latter is expected to give his helper some remuneration each week, according to his means, and to the amount of work accomplished. The women naturally take kindly to household work and to the care of children. Every day we are met by the sight of some of these insane people playing with the children, watching over them, taking them to school, holding them in their arms, rocking them, etc.

On a somewhat higher plane, we see others who have some artistic taste, and who do very well in the orchestra on Sunday morning, and sometimes at concerts ; and again we have

among us, some insane residents who on occasion of the funeral of a fellow-countryman, or a member of the same religious sect, acted the part of Protestant Pastor with very good effect.

The insane patient thus enjoys the greatest possible liberty in his out-of-door surroundings, and in his home meets with affection and devotion. Sitting at the common table and making himself useful as far as he can, he shares, unless his intelligence is too shattered, all the joys and sorrows of his adopted family, and it is often touching to hear on the lips of one of these unfortunate beings, expressions of affection for his nurses whom he calls "mother" and "father," and who show him equal



Fig. 12. New Bath Houses for Patients.

affection in return. "This poor fellow," they will say, "is our child."

It may be interesting to notice just here, the sum that is given by the administration to the nurses as remuneration.

For the insane paupers belonging to the

First Class (laborers or quiet patients) 64 centimes (about 12½ cents) each day.

Second Class (noisy or semi-depraved patients) 80 centimes (16 cents) each day.

Third Class (more difficult, wholly depraved or epileptic patients) one franc and five centimes (21 cents) each day.

Let us glance for a moment, at the kind of insane people that are sent to Gheel. The population of the colony includes a great many patients who are able to do some sort of work, perhaps two-thirds would be the approximate estimate. There are also a great many imbeciles of all grades (about 35 per cent.) who are quite incapable of appreciating any of the relations of family life, these people whose minds are closed to

ideas and emotions, are by reason of the constant care in cleanliness which they require, much more out of place in a family than in an asylum adapted to them.

The insane patients that are of the most use in a family, those who derive the most good, physical, intellectual and moral from this mode of life, and those who are more often excellent workers, are the imbeciles and idiots who are more or less educated, the many chronic non-maniacal demented and those suffering with persecutory ideas of a rather passive nature, certain classes of epileptics, a great many patients with periodic attacks, and lastly convalescents. The latter find in the colony life an intermediary stage between the regular life of the asylum and the bustle and distraction of city life.

Along this line of discussion we might say that we consider the ideal arrangement, an asylum surrounded by a colony which is closely dependent upon it, as is the case in some other places, and in addition to this a school for idiots and imbeciles, that after they have been taught they may come out into such an environment as is found in Gheel. All this has been very well set forth by Dr. Ley at the Congress at Antwerp.

In such surroundings there are 1,800 patients scattered over considerable area (12,000 hectares, or 5,000 acres) under the care of 1,200 nurses. The number of patients cared for at Gheel is naturally affected by the many concessions granted to certain places in view of the new asylums that are being created. Since the time about six years ago when the number of insane people domiciled there increased to 2,600, the population of the colonies adjacent to Gheel and Lierneux has remained stationary.

Here are a few statistical extracts:

		Gheel.		Total.	Lierneux.	Total Insane in Asylums and Colonies.
		Men.	Women.			
31 XII.	1875	605	686	1,291	....	7,236
	1885	780	801	1,581	109	9,327
	1890	935	911	1,846	236	10,777
	1895	1,029	887	1,916	404	12,802
	1896	1,060	923	1,983	463	15,407
	1900	1,058	899	1,957	456	14,974
	1901	1,011	842	1,853	463	15,407
	1902	1,022	827	1,849	477	(16,000)?

It would take too long to comment on these figures, for they mean but little to foreign readers.



The discussions of the Congress in Antwerp have been widely repeated. The chief executives of the department of charity and those that officially spent the money, can not be indifferent to the criticisms which poured in on every side concerning the method of caring for the insane in Belgium.

Those who share the honor and responsibility of executive power will, we hope, be inspired by the resolution of the Antwerp Congress which was the result of the reorganization demanded on every side. "The physician ought to be the responsible head of the house," says Quislain, and his words have been brought to mind more than once, as much in connection with the asylums as with the colonies.



Fig. 13. A Street in the Village.

The medical element which is the chief concern of the Colony of Gheel is subordinated to the local element, even in such matters as a physician only could decide, such as the apportioning of the insane in families. In 1851 when the State of Belgium took the colony of Gheel under its tutelage and direction, it saved the institution from total disappearance. Its work has been continued up to the present, but it is still incomplete. To quote Dr. Meens of Gheel, "Progress is a general law of life, and whoever does not adapt himself to the conditions of the times is threatened with ruin. The rejuvenation of our colony will give physicians an opportunity to place their patients there; and to bring it about we depend on all true friends of Gheel, as well as on those who are convinced of the practical value of the family life for the insane."

## REDUPLICATIVE PARAMNESIA.

BY ISADOR H. CORIAT, M.D.,

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WORCESTER INSANE HOSPITAL.

Simple paramnesia received its first attention in psychiatry from Kraepelin<sup>1</sup>, who made an exhaustive study of what Sully called "hallucinations of memory." He divides these into three classes; first, simple pseudo-reminiscences (einfache Erinnerungsfälschungen); second, associating pseudo-reminiscences (associirende Erinnerungsfälschungen), and, third, identifying pseudo-reminiscences (indentificirende Erinnerungsfälschungen). This division was an arbitrary one, made merely for the purposes of study. Outside of this paper of Kraepelin's, however, no special studies of this disorder in relation to, or occurring in the course of a specific mental disorder, were made until the recent contributions of Pick. As a rule, the communications of other writers upon paramnesia related mostly to a pure illusion of memory without detailed analyses, and were mere isolated cases, occurring in otherwise normal or slightly neuropathic individuals. Somewhat later, Burnham<sup>2</sup> considered the subject at length, reviewing the work of others and giving many original observations with fine analytical details. Ribot and Sully, in their monographs, give the subject of paramnesia but meager notice. The former looks upon the disorder as an isolated memory, seemingly new because no concomitant state impresses upon it the reprint of the past, and no association has a corrective effect or impresses a feeling by which it might be localized in time. Sully considers it a mere illusion of memory, analogous to illusions of the peripheral sense organs. A series of later French contributions in the *Revue Philosophique*<sup>3</sup>, and also the very recent work of Léon-Kindberg<sup>4</sup>, look upon paramnesia as the failure of an effort of synthesis in memory. Although all the investigators acknowledge the feeling of the presence of manifold occurrences, yet it remained for Pick to point out that this might not only reduplicate certain events, times and places, and be both, as Sollier expresses it, a paramnesia of certitude and localization, but might be so deep and far reaching as to implicate the patient's own personality. Under the title of reduplicative paramnesia,

therefore, Pick has recently published a few observations<sup>5</sup> with the clinical histories and analyses reported in great detail, dealing with a peculiar paramnesic memory disorder, occurring in the course of various mental disturbances, characterized in that a series of events in the patient's remembrance falls into manifold occurrences, the isolated events being impressed upon the patient as repetitions thereof. This is to be distinguished from cases of so-called double or alternating consciousness, or multiple personality, in that the patient maintains the consciousness of his own personality.

As the symptom-complex appears to be but little known, it was thought that further studies of this memory disorder would be stimulated by a review of Pick's work, to which I am fortunate enough to add some observations of my own. Paramnesia is a very broad field, even the reduplicative variety, and while my cases are not absolutely of the same specific type, yet they bear a close generic resemblance. For its further analysis and elaboration, both from a psychological and psychiatric standpoint, the essentials of this symptom-complex require minute and careful study. For this purpose, following the method in Pick's publications, the entire conversation is given in each daily examination, for a reaction to questions cannot be judged without a knowledge of the provoking or stimulating agent. A mere description is of limited value, for the finer details of the cases, on which the very essence of the symptoms depends, can only be shown by an examination in which the patient's mental state is clearly defined by the conversational method. It is only in this manner that the study can truly be said to be analytical, and the evolution and elaboration of the reduplicative paramnesic memory disorder be followed in the patient's mind and in his method of reasoning. As Pick was the pioneer in pointing out this new memory falsification, it is best to first review his cases and theories at length. In all the cases the disorder is connected with the memory images of the stay in the clinic or hospital.

The first case is that of a general paralytic, a merchant, 48 years of age, married, with a negative specific history, in whom shortly following an attack of transitory episodic aphasia, the illusion of memory first made its appearance. He asserted that there were two clinics exactly alike, and at the head of each of



these clinics were two professors of the same name. Out of the long and minute analyses which the author gives, the following examinations are selected as typical:

"October 24—"Do you know me?" "Dr. Pick." "Where do you know me from?" "From Prague and then from the North of Bohemia." "When have we been together?" "I don't know exactly." "When did we see each other the last time?" "In Tetschen in the North of Bohemia. Then you tested my eyes. The doctor also was there, and I think I had pretty good success." "Where are we?" "The whole institution is not all—not at all pretty." "But you have to give some reason for your remarks." "I can give reasons. But you know it can't be compared with other institutions." "What institution is this?" "This is an institution for the insane." "What are you doing here?" "I don't do anything here any more, and shall ask the professor to let me go out." "How long have you been here?" "I am here a few days." "Have we ever talked with each other here?" "Yes; at that time in Tetschen you took great pains with me." "Who am I?" "Professor." "Which one?" "It seems to me you are not Professor Pick, but the gentleman of the new clinic, that is, the second psychiatric clinic." "Where is the first?" "I don't know, the third professor is the judge. There are three Professors Pick; one the director of the psychiatric clinic, the second are you, the third is the medico-legal examiner. There are absolutely no more." "Where did you become acquainted with the coroner?" "From the newspapers. He had very great success in the process of two merchants." "What was the professor to do with it?" "As an expert, quite recently." "How many Professors Pick are there?" "Absolutely only three." "How do they look?" "You have a full beard, the second has a mustache, the third one is very young. He was twice or three times in the newspapers." "Where are we?" "In the new psychiatric clinic of Pick's. There are absolutely only two clinics. I know it from my brother—no—I am mistaken, it is my brother-in-law." "What are you doing here?" "I was around here in North Bohemia." "How did we meet?" "Near Trautenau." "How did you get here?" "That may very well be. There is a new institution, but I don't think that Pick has erected his factory." "Where are we?" "In Prague; I was formerly in Trautenau."

"Who am I?" "A mill owner." "What is my name?" "I would be very glad if you would give me your first name. My name is Schlumberger." The patient immediately draws out his note book and starts to write the name. "Who am I?" "You are Professor Pick or Schlumberger. If you want to stick to that name I have nothing further to note down." "Who is Schlumberger?" "He is a pretty fine fellow, well known for his wine." "Once more, who am I?" "Professor Pick; stick to your name, it is always pretty good." "Are there still two Professors Pick?" "Just at present I don't know of any. There are only two, the third is an insignificant person."

Pick's second case relates to a female patient, aged 67, with the typical picture of presbyophrenia. She was healthy up to the onset of her mental trouble, then her strength began to fail rapidly, depression with vague self-accusations and ideas of poisoning supervened, the memory became poor, and she became rapidly disoriented with marked illusions of memory. Following a convulsive attack with some fever and slight focal symptoms, she asserted that there were two clinics of similar arrangement and containing the same number of patients. Later, however, she contradicted herself and became confused as to the exact nature of the clinic. She furthermore added that she had seen and now recognizes the physicians present as having been in the first clinic. When questioned as to the peculiarities of the two clinics, she replies that "to-day's" clinic is perhaps a continuation of the previous one, and then gave details as to the number of beds and the arrangement of the rooms. When she is furthermore asked how the patient whom she claims to recognize managed to come to the second clinic, she replies, "They come from one place to another," and adds that both clinics are the same, but are situated in different places. Later she added that she is now in the "suburb clinic," whereas she had previously been in the "town clinic" for five months. The same professor attended both clinics, the assistant also visits there, and when asked if there are two professors of the same name, she replies: "He is the same. \* \* \* You are everywhere." She claimed to be acquainted with the patients about her because they had come from the other clinic, where she had previously been. Once she spontaneously

said to the assistant, "This is already the second time that I have had the advantage of your valued treatment." The above statements she later modified by adding that the second clinic was in the third story of the building, and that she had formerly occupied a room which is at present occupied by another patient.

In his first paper, the author points out similar symptoms in delirium tremens, in which a delirious patient, who was brought in during the night, asserted in the morning that he had been at the clinic for two hours, and had passed one-half of the night in a similar hospital, from where he had been transferred. In discussing this last case, the author states that we are dealing here with a similar disturbance of consciousness, but which is brought about by a different pathological condition.

The clinical histories of my own cases follow:

*Case 1: Excessive alcoholic indulgence; several attacks of delirium tremens; Korsakow's psychosis with multiple neuritis; marked memory disorder; reduplicative paramnesia*—The patient, J. L., 38 years of age, and an Irishman by birth, was admitted to the Worcester Insane Hospital on September 3, 1903. The anamnesis showed the absence of any psychopathic or neuropathic heredity. There was no history of syphilis. He had been married ten years, and his wife had given birth to four children, all of whom are alive and healthy. There were no miscarriages. He had been a bartender for fourteen years, was allowed to drink as much liquor as he wished, and had occasionally been intoxicated. During the last few years, following a drinking bout, he suffered from attacks of morning vomiting. In addition he also had a number of slight attacks of delirium tremens, but had been free from these attacks for a year previous to the onset of his present trouble. About seven weeks before admission he began to show signs of failing memory. He came home one Saturday evening and refused to return to work that night, and could not be persuaded to believe that the day was Saturday. On Sunday morning he again forgot the day and started for work, but was persuaded from his course by his wife. The memory became progressively more affected, and two weeks later he complained of feeling weak and stopped work. There was some slight edema of the feet for a couple of days, and he complained of a sensation of fullness in the lower part of the thorax. A week later he began to complain of people being at the window, and during the night would leave his bed many times in order to drive them away. On the advice of a physician he was sent to the Washingtonian Home, where it was noted that he was very delirious, slept poorly



and had a slight fever. He did not improve, and was finally committed to the hospital. He was placed in bed and the physical examination showed the following:

*Physical Examination*—Height, 5 feet 9½ inches; Weight, 181 pounds. Tall, well developed and well nourished, rather stout. No muscular atrophy. Skin smooth and dry. Tongue clean. The little finger of the left hand is amputated at the first phalangeal joint. Light brown hair streaked with gray and sandy mustache. Complexion florid.

*Tenderness*—A little tenderness along the line of the median nerves, the anterior crurals, the upper parts of the sciatics, the intercostals from the ninth to the twelfth ribs inclusive, and over the biceps, thigh and calf muscles. There was extreme tenderness in both popliteal spaces.

*General Sensations*—He complains of a sore and "dead" feeling in the calves and arms, and of a sensation of formication and "pins and needles" in the feet. "My legs are numb, and I have no feeling in them, just like a man's foot cut off and thrown at the side of a wall." The muscular sense of position is intact, and there is no loss of the orientation of the limbs.

*Cutaneous Sensibilities*—Marked hyperesthesia of both legs below the knees. No anesthetic areas. Localizes well all over the body. The stereognostic sense is not impaired.

*Eyes*—Pupils regular and react promptly to light and accommodation.

*Reflexes*—Knee-jerks, elbow and forearm reflexes, and Achilles absent. No ankle clonus or Babinski.

*Motor Functions*—Marked swaying in Romberg's position. He walks with his legs stretched widely apart, and brings the weight of the body heavily upon the heels. No tremor, motor paralysis or foot drop. The extensors of the toes are a little weakened.

No speech or writing defect. The heart, lungs, abdomen and urine are negative.

The examination detailed above has remained unchanged up to the present, with the exception of an improvement in the general health and the disappearance of the sensory disturbances and tenderness over the muscles and along the nerve trunks.

The mental status of the patient showed that he was quiet, with a general euphoric feeling, except an occasional complaint of a sensation of a "ton weight" on his chest and abdomen. There was no fever and the appetite was good. While confined to his bed, at times he would take up a paper or magazine and read for awhile, and although he seemed to take pleasure in this he was unable to retain, except for a few minutes, the content read. This was particularly well shown by the fact that every day he would read the same articles with renewed interest, and without any

memory of having perused the subject matter before. He was entirely disoriented for place and persons, but had a vague idea that the city might be Worcester or near it, and thought that the season was autumn, but was unable to name the exact month. The grasp on the surroundings was exceedingly poor, and the memory for both recent and remote occurrences markedly impaired. He spoke several times of having recently been in a hospital in Tewksbury, but could not recall having been in the Washingtonian Home or a recent visit of his wife. The recent memory impressions and the grasp on things (*Merkfähigkeit*) were only fair, but with increasing defect when distracted by a short conversation. He was able to give only a vague description of objects and buildings with which he was perfectly familiar. The grasp on education and general experience, including calculation, was defective. The associations were within good limits. He fabricated to some extent, but was not very suggestible. He admitted having had several attacks of delirium tremens, but could not recall the last one. During the delirium there were hallucinations of sight and hearing, which he explains on the basis of dreaming, but these sense deceptions are denied at present. He had partial insight into his condition. "There must be something wrong. I forget; my head is all mixed up these ten days."

September 11, 1903—"Did you see any callers to-day?" "No." (A visitor had called about an hour previously.) "What have you been doing?" "Looking over a paper." "What were you reading?" "Couldn't recall." "Is your memory good?" "Not at present." "What is the reason?" "I couldn't say." "What place is this?" "City of Boston, ain't it?" "Do you know the name of the building?" "No." "Do you remember coming here?" "No." "Have you been out of your head?" "I must have been." "This is the Worcester Insane Hospital." "I had a friend in the Worcester Insane Hospital. J. L., he used to keep a restaurant." (Note: the initials "J. L." throughout the entire clinical history of the case, represent the same name as the patient bears, and which he continually uses when referring to the other "J. L."). "What is your name?" "J. L." "What was your business?" "I used to throw beer over the bar." "Where was the restaurant that you worked in?" "Roscommon." "Did you work in the same restaurant?" "No." "It is strange that a person of the same name should work in the same place and come to the same hospital, isn't it?" "Yes." "How old was he?" "Forty-five." "How old are you?" "Forty." "You are not the same man?" "No." "Where did you come from?" "I don't know how I left the house or anything since then." "How did you get so mixed up?" "I couldn't tell you."

September 26, 1903—"What city is this?" "Worcester."

"What building?" "For the insane. I guess it is Worcester by the lake there." "What is the name of the lake?" "I don't know." "Where were you before coming here?" "Home at Roscommon." "Why were you sent here?" "I didn't know where I was till I woke up." "When was that?" "To-day." "Have you been asleep all this time?" "Yes." "How long?" "Probably a month." "What month is this?" "September." "What part?" "I couldn't say." "What year?" "1893." "What day of the week is this?" "I couldn't say." "How did you happen to go to sleep for so long?" "I think some one knocked me out at home to bring me here. I don't remember coming here, so I must have been knocked out or drugged. I feel like a ton of weight on my chest. My legs feel numb like. I don't remember anything before to-day. I don't remember being here or talking to anyone here before to-day." It is reported by the attendant that the patient asks several times daily: "How long have I been here? I guess I have just woke up. I have been asleep."

October 1, 1903—He still insists that there was a J. L. in Boston who was a restaurant keeper. "What is your business?" "Thowing beer over the bar." "How old is he?" "About forty." "And you?" "About thirty-seven." "Was he ever in a hospital?" "Yes, in Worcester." "What hospital in Worcester?" "I was in it several times to see him. There are three hospitals there, and he was in the Crazy Hospital on the other side of the bridge." "Why was he in an insane hospital?" "He was off his head." "From what?" "Business." "Have you seen the other J. L. lately?" "No." "When did you see him last?" "He is dead." "When did he die?" "I don't know." "Of what did he die?" "He was sick." "How long have you been in this place?" "I couldn't say. I guess it is over a week. I don't remember coming here." "Were you ever in a place like this before?" "I was in a hospital in Boston for sick people. I was there to have my finger cut off." "Where were you before coming here?" "In Boston slinging beer over the bar." "Have you been away from this place lately?" "Not since I came here." "Where were you yesterday?" "I couldn't tell." "Weren't you working yesterday?" "Oh, no. I am kind of mixed up. I feel kind of heavy."

October 7, 1903—He says the other J. L. is a friend of his, about forty years old, while he (the patient) is only thirty-six. He furthermore states that he (the other J. L.) was once in the Worcester Insane Hospital, because "he was a little off his head. He is dead now." "Where are you?" "I don't know." "Did he drink?" "Oh, yes." "What did he do?" "Keep a restaurant." "What did you do?" "I worked in the liquor business." "Did you ever see the Worcester Insane Hospital?" "Yes, I had a friend up there by the name of J. L. There are three or four buildings there built of brick or stone." "Who was the doctor?"



"I couldn't tell; I never saw a doctor." "Did you see the nurses?" "I never had much to say to them. They were all men nurses." "In what sort of a ward was he?" "He was in a small room with one bed in it." "How long ago was this?" "Four or five years ago." "How long have you been here in this hospital?" "I was thinking about that to-day. I don't know." "What hospital is this?" "I couldn't say." "What city?" "I guess it is Boston." "Did drink make the other J. L. insane?" "He never was a drinking man." "Did he die in the hospital?" "I guess so." "Are there two persons by the name of J. L.?" "Only one now, the other man is dead." "What did he look like?" "Stout man with mustache and brown hair, streaked with gray; the top of his head was bald." "Did he ever have an accident?" "Not that I know of; but I got the finger cut off." (Little finger on left hand.) "Did he have a finger cut off?" "I can't say for sure, but maybe he did have the top of one finger cut off." "Which hand?" "I couldn't say." "Of what did he complain when he was sick?" "I forget now. I suppose he was a little off. He used to talk about home. He was born in Ireland, County Roscommon." "Where were you born?" "Galloway." "When did you come to the United States?" "Probably fourteen years ago." "When did he come?" "He came younger." "Was he married?" "No." "Are you?" "Yes, Doctor, eight or nine years ago." "When you visited the Worcester Insane Hospital did it look like this?" "I don't think so." "Who was the superintendent of the hospital then?" "I don't know, I was there only once, on a Wednesday or Thursday." "Into what room did you first go?" "I came in through an iron gate, quite a little walk up the main road. The lake was before me." "What lake?" "I forget." "How long ago was this?" "A few years ago. I don't know how long J. L. is dead. He was about forty when he died." "Can you recall his features distinctly?" "Oh, yes." "How heavy a man was he?" "Over 200 pounds." "How heavy are you?" "About 185." "How tall are you?" "Five feet nine inches and one-half." "How tall was he?" "Pretty near that." "Did he complain of pain?" "He was stiffened up in belly." "You have the same complaint?" "Yes, I am heavy from lying down." "Isn't it peculiar that you should both have the same trouble?" "No, Doctor."

November 10, 1903—"What place is this?" "Hospital." "Where?" "In Worcester." "What hospital is it?" "I don't know." "In what part of Worcester is it situated?" "I used to know. It is on the left as you go out. There are three hospitals in Worcester, but I don't know the names of them." "What month is this?" "November." "What part?" "About the 10th." "What year is it?" "1893." "What is the day of the week?" "Saturday" (Monday). "How old are you?" "About 36." "What year were you born?" "1862 or '63." "What year is this

then?" "1883." "What time of the day is this?" "About 10 o'clock" (10.45 A. M.). "How is it you do not know these matters better?" "I forget them." "Is your memory poor?" "Just as good as always." "Why are you here?" "I have just been thinking of it." "How long have you been here?" "I couldn't tell, because I don't remember coming here." "Why is that?" "The doctors in Boston knocked me out." "Where were you at that time?" "In the house where I was living." "Has your mind been upset?" "Perhaps it was." "Is it now?" "Not a bit." "How many attendants are there in this ward?" "Three or four; no, four" (three). "How many doctors have you seen?" "Three" (four). "How many beds in this ward?" "I couldn't tell; yes, there are twenty" (ten). "What did you have for breakfast?" "Bread and oatmeal" (partially correct). "Have you been working lately?" "I couldn't tell." "What is your work?" "Bartender for ten years." "What about the other J. L.?" "He is dead." "Of what did he die?" "He died on S. St., and was buried from there about nine years ago." "Was he ever in a hospital?" "He was in the Worcester Insane Hospital, down below the bridge. I was to see him there two or three times. He was off his head; probably from drink." "How long was he in the Worcester Insane Hospital?" "Six or eight months." "How many times did you visit him?" "Two or three times." "How long after he went to the hospital did you visit him for the first time?" "Two or three months." "And the second time?" "About three months after that." "And the third time?" "I couldn't say for sure." "On what days did you visit him?" "In the middle of the week—Thursday or Friday." "How did you go to Worcester?" "On the steam cars." "How long did it take?" "About an hour and half." "What did the depot look like?" "It's a large depot. It's a brownstone front, and there is a steeple with a clock in it" (only partially correct). "In what ward was this J. L.?" "He had a small room for himself." "Did you remain long when you visited him?" "Oh, yes, he had his clothes on. He had slippers on. I guess I stayed there about an hour." "What did you both talk about?" "His business on L. St. He kept a restaurant. He lived with his cook, but I don't know if he was married to her." "Did he seem a little off when you talked with him?" "Not at that time." "Did you see his doctor then?" "I never saw the doctor." "What was the doctor's name?" "I couldn't say." "Was it Dr. C.?" "Yes, that was one." "What did he look like?" "I never seen him." "What did the other J. L. look like?" "Stout man, medium size, red faced with a mustache, a reddish mustache, and his little finger of the right hand was off." (The patient has a florid complexion, sandy mustache and the little finger of his left hand is missing.) "Of what did he complain?" "Head and stomach, from his

whiskey. His stomach felt sore and all bound up." "Did he have any pain?" "No." "How heavy a man was he?" "Pretty close on 200 or 190 pounds." "How heavy are you?" "About 186." "How old was he?" "About 43." "Was he a relative of yours?" "Kind of a distant relation." "Where was he born?" "Roscommon, Ireland, and lived there most all his life." "How did you become acquainted with him?" "I met him in this country. I got acquainted with his brother first, his brother John." "Are you married?" "Yes," "For how long?" "Eleven or twelve years." "How many children have you?" "Three." "Did the other J. L. have any children?" "No, but his brother John had three children." "Were both your troubles caused by drink?" "Yes." "What did the hospital look like?" "A steep building with a steeple." "Was it near the road?" "On the left of the main road." "What color was the building?" "Reddish-brick." "How did you enter the building?" "Went into the office." "What is my name?" (Dr. C.). "I don't know." "Are there two J. L's?" "Only one now, the other man died. I got a little boy at home named J. L." "Who was the superintendent of the hospital?" "I never knew." "Isn't it peculiar that both you and he should look alike and have the some complaint?" "I think about that a great deal, and I think that if one died the other will die in the same way. It was too much booze that caused my trouble and the other J. L's trouble."

*(To be continued in October issue)*



## "AUTOMATIC" AND INTELLIGENT ACTIVITIES.<sup>1</sup>

BY HENRY RUTGERS MARSHALL.

Since the discovery of the fact that a correspondence of some nature exists between the activities of nerve and modifications of consciousness, the zoologist has taught the psychologist many things of great value. In my view modern psychology in turn has not a few lessons to teach the zoologist, and what I have to say in this paper points to one such lesson from this source.

It is evident from current discussion that the zoologist to-day asks one question which is of great interest also to the psychologist: viz., whether we are warranted in assuming that there is a difference in kind between certain forms of animal activity, in consideration of the fact that intelligence guides some and does not guide others:—whether we have a right to assume that under certain mysterious conditions an effective consciousness steps in to influence animal behavior.

Strictly speaking, this is a metaphysical question: but there is no possible objection to its consideration by the zoologist if he faces the fact that in such consideration he leaves the realm of zoology proper.

This question is answered affirmatively, either explicitly or tacitly, by a large number of our modern biologists, although it is evident that they usually take this position without due consideration.

We commonly overlook the fact that we assume the existence of consciousness in animals only as the result of an interpretation of their acts in terms of our own experience. Upon the appearance in animals of certain activities resembling our own, we argue by analogy, and as the result assume in the animals conscious experiences similar to our own. I do not myself question our right to make use of this argument by analogy; in fact I would contend not only that we may use it, but that we are bound to carry the argument much farther than we commonly do.

But the zoologist usually fails to note that he is treading on dangerous logical ground when he uses the consciousness

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<sup>1</sup>An address delivered before the Zoological Seminar at Columbia University, April 21, 1904.

as thus assumed to explain the nature of certain activities, which activities alone give him ground for his assumption of the existence of the very consciousness to which he appeals as a basis of explanation.

But some one is likely to say that we attempt to make this distinction among the activities of animals just because we find in our experience certain cases in which our activities do not seem to be influenced by consciousness, while in other cases consciousness does seem to be efficient in relation to them. This is of course true: but the meaning of the "efficiency" thus ascribed to consciousness, if investigated, is found to be such that its use in this way is of doubtful validity: a point to which I cannot here refer.

In any event it must be apparent to all that this attempt to treat consciousness as an efficient cause in the explanation of animal behavior in certain cases, and in certain cases only, results in an enormous amount of inconsistency in descriptive work, and in very wide differences of interpretation. These inconsistencies and differences of interpretation would disappear, however, at once if it could be shown that what I call the *neururgic*<sup>2</sup> and *noetic* correspondence is thoroughgoing: i.e., that all nervous activities correspond with psychic modifications of some form, and vice versa. For if this were true we would come to look upon all animal life as involving some forms of consciousness; we would find everywhere the efficiency of consciousness;—whatever this efficiency may mean; and we would then find no ground for sharp distinctions between intelligent and automatic acts.

Now it is exactly this thesis that I am concerned to defend. It of course cannot be claimed that this is a new thesis, for many eminent men in the past have suggested it, and in particular directions have carried the favorable argument pretty far; but it appears to me that the evidence before us today, which is in the main given to us by the effective investigations of the zoologists, leads us to a restatement of the thesis in a form which is thoroughly convincing.

Some one will perhaps at once object:—"But all high authorities among the neurologists and psychologists agree that

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<sup>2</sup> I have used this word in my late writings, for convenience, with the meaning "relating to the activity of nerve"; there being no current term having this exact significance.

the activities in the cortex of the brain are alone concerned in correspondence with consciousness:" or with Loeb you may say, that a certain specific structure, which gives the animal what he calls "associative memory," is demanded before consciousness ever appears.

I agree that one takes his courage in both hands, as the French say, in opposng this widely current view: but I find it so simple to state the observed facts in conformity with the thesis I defend that this apparent opposition to the currently accepted view turns out to be little more than a verbal one; and the new expression of the facts seems to me to be of great importance to both the zoologist and the psychologist.

My hope and belief is that the zoologist will eventually adopt this view which I uphold, and that the psychologist will thus be forced to treat the corresponding psychological view with full attention.

The modern zoologist has compelled us to look upon the nervous system of animals as active in the determination of their movements. It is interesting then to note that quite independently the modern psychologist has compelled us to throw over the atomistic psychology, which was current previous to our generation, and asks us now to look upon consciousness as *systemic*. Here is a correspondence which is fully accepted on both sides.

But the zoologist has gone beyond this and has shown us that the nervous system of the higher animals is a vastly complex system of minor nervous systems, of hypothetical nervous elements: minor nervous systems, the elements of which are variously related and differently integrated, but which as minor systems are themselves related and integrated to form the nervous system as a whole.

This being so it is exceedingly interesting to note that introspection shows us that human consciousness is also a vastly complex system of minor psychic systems of what may be hypothetical psychic elements: minor psychic systems, the elements of which are variously related and integrated, but which as minor systems are themselves related and integrated to form what we call consciousness as a whole.

For example we have the great minor psychic systems --



Sensations, relating to receptivity; Instinct Feelings, relating to reaction of the whole organism; and the realm of Ideas, of Thought, relating to the co-ordination of the two other realms.

But within these minor systems, of what we may call the first class, we find less general systemic differentiations. For example, light, and sound, and heat, and taste, and touch, are separate minor psychic systems within what for convenience we may call the higher minor psychic system—Sensation. And within these lower minor psychic sensational systems, light, sound, etc., we have an indefinitely large number of still lower minor psychic systems, e.g., an indefinite number of colors, an indefinite number of tones, etc.

The colors are clearly differentiated and yet are all held together systemically; and so are the several sound tones. No one ever thinks that a special color is a sound tone of any kind.

And so the sensations as a whole on broader lines are clearly differentiated, and yet held together systemically. No one ever mistakes a sensation for an idea, or an instinct feeling.

Were there time this same fact could without difficulty be shown in relation to the other minor systems of the first order, viz., instinct feelings and thoughts.

Here then we have apparently a far-reaching correspondence between the neururgic and noetic systemic relations. And I submit, that had we learned this lesson, taught us by the modern zoologist and psychologist, before we had been taught that the cortex of the brain is the organ of mind, it never would have occurred to us to consider this latter dogma as in any degree tenable.

We would have been led of course to hold that the cortex of the brain is, from a certain point of view, the pre-eminently important part of the nervous system, but we would have conceived the relation of consciousness to nervous activities after the manner which I shall now briefly indicate.

If we consider the nervous system as a whole, and assume that its elements are spread out evenly on a flat plane, instead of being to a large extent crowded within the skull; then if we divide any flat surface up into little squares we may suppose each little square to represent a nervous element. We may

also represent the degree of the activity of each element by assuming its corresponding square raised by a certain amount above this plane.

Now as I understand it, we have to assume that each nervous element is active in some measure so long as it lives; and if that is true then what we speak of as a special activity in any nervous part is really but an *emphasis* of activity in that part.

But the amount of activity in the several nervous parts varies greatly at any moment taken for consideration: so that if the whole nervous system is thus viewed we may very well symbolize its neururgic condition at any moment, in spatial terms, by representing it as the surface of a liquid upon which a wave pattern appears.

In other words the nervous system as a whole will display in each moment what I call a specific "neururgic pattern," in which certain parts are more markedly active than others. The markedly active parts are not the only active parts; but their activities are set over in contrast from the great body of less markedly active parts, which form an undifferentiable mass of minor activities against which the specially marked activities appear as emphases of activity.

Now if the theory of neururgic and psychic, or noetic, correspondences is true; and if it is thoroughgoing; then consciousness at each moment must display a specific "noetic pattern" in which certain parts are more emphatic than others. The markedly active psychic parts under such a view are not the whole of the consciousness of the moment, but in consequence of their emphasis they are set over in contrast from the great body of less emphatic psychic parts which form an undifferentiable psychic mass against which appear the special *psychic emphases*.

The question now arises whether we have any ground in experience for believing that such a correspondence exists.

In the first place we have an overwhelming amount of evidence to show, what is generally agreed to by the neurologist and psychologist alike, that the psychic states which are in the field of attention,—our sensations, instinct feelings, ideas,

etc.,—do correspond with the emphases of activity in the neururgic pattern.

The question then remains whether there exists an undifferentiable noetic mass against which these noetic emphases are contrasted, corresponding with the neururgic mass against which the neururgic emphases are contrasted.

Of the existence of this noetic mass I think there can be no question. The field of attention spreads out from a clear focus to a margin, and this margin fades away into what Prof. Wm. James call the “fringes.” And even if we take the most punctual of simple sensations we certainly cannot claim that it exhausts consciousness: there is always felt to be a something more of consciousness of the moment when the sensation appears: and its appearance does not involve the annihilation of this rest of consciousness. This becomes still clearer in the fact that we have come to speak of these clear elements of attention as presentations. Presentations to something they must be; and under this view, that to which they are presented is the undifferentiable mass of unemphatic psychic parts which constitutes what I think may well be called the *field of inattention*.

And now we may turn again to the zoologists’ problem. If our thesis is valid all activities of parts of the body which are connected together in a system have psychic correspondents which are either emphatic enough to become separated in attention, or are part of the undifferentiable psychic mass which makes up the field of inattention.

The so-called reflex or “automatic” acts are thus acts whose psychic correspondents are within the field of inattention. The intelligent acts are acts whose psychic correspondents are clearly within the field of attention.

The frequently recurrent iris reflex acts, for instance, are so fixed and definite that they never appear as emphatic, and their psychic correspondents never get into the field of attention.

And this view enables us to explain certain puzzling cases where what we call reflex acts sometimes do, and sometimes do not, involve noticeable modifications of consciousness.

The heart beat, for instance, is of the reflex type, and usually during active waking life there is no noticeable conscious correspondent of its activities. In this case, under our view,



the psychic correspondents of the heart activities, while we are wide awake, are of the field of inattention; as related to the marked emphases of this active waking life. But as we fall asleep the heart beat activities become relatively emphatic, and then we are likely to find their relatively emphatic psychic correspondents within the field of attention.

There is thus no ground of distinction between the two types of action except one of neururgic, and the corresponding noetic, emphasis.

Let us now turn briefly to a theory which I have defended at length in my *Instinct and Reason*, and which I think accords with, and in some measure explains, the facts, and which goes far to corroborate the general thesis which I have here maintained.

If we could isolate a living cell we must assume that it would react in a definite way to appropriate stimuli; and its reaction we may, if we choose, call its "instinct action."

Now if a number of such cells, for simplicity let us say 5, are brought into relation as a little organism; and if each of the cells retains its specific modes of instinct action; then, if we consider the group rather than its elements, the combined instinct actions of the elements would give what would appear as a specific instinct action of the whole group, or little organism. In fact it is clear that an organism such as we are considering could not persist, as such, unless the combination of the instinct actions of the elements resulted in an instinct action of the group which would enable the group to conform with the conditions of its environment.

The normal instinct actions of the five elements would together constitute the normal instinct action of the group. But if the instinct action of one of the five elements should be, not changed in character, but merely markedly emphasized, then the normal instinct action of the group would be *modified*. Emphasis of activity in the element would thus appear to be the basis of modification of the instinct action of the group taken as a unit.

If now we suppose that for each of these five elements is substituted a little system of five elements: then we would have a system of five minor systems of five elements each. Each

of these five minor systems would display its own group instinct actions; and the instinct actions of all the five minor systems would give us what we would call the normal instinct action of the whole system of five minor systems.

Now here again; if the instinct action of a special minor system within the group of five, were not changed in character, but merely became emphatic, the typical instinct action of the group taken as a whole would appear to be *modified*. And even if the instinct action of only one element in one minor system were emphasized, its little minor system's typical instinct action would be modified, and thus also we should have a modification of the typical instinct action of the whole large organism. It would thus appear that modification of the normal instinct actions of such a simple organism of 25 elements could all be traced back to mere emphasis of activity in some of the minor systems, or in the elementary parts themselves.

Now if this is the process of modification in such simple organisms as the one I have pictured, it is easy to see how complex might be the modifications of the typical instinct actions of an enormously complex system of minor systems such as the human nervous system is; and nevertheless it might well be that these variations of mode of instinct action of the organism as a whole might be all of them traceable back to mere emphases of the instinct actions in some of the minor nervous systems, or even farther back still to a mere emphasis of the instinct action in some element of a minor nervous system.

Emphases of activity in minor parts would thus appear to be the basis of modification of instinct actions of the organism as a whole.

But now let us ask how these emphases of activity within systems might be brought about.

1. In the first place, in all organisms, from the simplest to the most complex, they would certainly be in great part determined by the energy of stimuli reaching the parts of the system from the environment of the whole system.

But when the organism is very complex emphases within minor systems might be due to influences quite within the whole system; appearing in parts of that system which are en-

vironmental, as it were, in relation to the minor system whose activity is emphasized when modification occurs.

(2-A) But these influences within the complex system which thus produce emphases of activity in one of its minor systems, may themselves be emphatic activities in other minor systems; or (2-B) on the contrary they may arise out of the great undifferentiable mass of unemphatic activities against which the emphases of activity are contrasted.

In this manner it appears that we are able to say that all the activities observed in animals are instinct actions; that they all appear as modes of that simplest of all forms of activity, viz.: the reaction of a living cell to the stimulus received from its environment. Beyond this we may hold that these instinct actions vary because of the variations of the instinct actions of the minor systems of which the great system is composed, these particular variations being in all cases traceable to mere emphases of activity in certain of these minor systems, or in the elements of which these minor systems are composed.

Assuming that all this is true we must note that we have thus far dealt only with objective facts. But if now we go back to the propositions with which we began, we recall that, under the hypothesis of a thoroughgoing neururgic and noetic correspondence already maintained, these emphases of nervous activity, which appear to be of the very essence of variations in the forms of activity of the organism considered, necessarily correspond with emphases within consciousness which make up what we call the field of attention.

If our objective view then is a valid one we should expect to be able to trace within consciousness the same relations which we have thought out in this objective study of animal activities. That is we should expect to note in experience that the most marked variations from our typical activities are accompanied by emphases within consciousness—in what is commonly called the field of attention: and this is of course a matter of every day experience.

But beyond this we should expect to find (1) the most marked form of these variations, as thus connected with states of attention, distinctly related to the reception of environmental stimuli. That this is true is clear in the fact that a large



part of our attentive consciousness consists of the noting of objects in the outer world, while at the same time the actions of our bodies are concerned with adjustments bearing relations to these objects.

But beyond this, as we have seen that the emphases of instinct actions in minor nervous systems, to which modifications of activity are due, may be the result of influences arising within the whole nervous system, and (2-A) as the result of specially emphatic activities already existing within the system; so we should expect to find the emphases within consciousness accompanying modifications of instinct action often due to emphatic influences within the conscious system itself; and this we surely find in the stream of thought which runs parallel with a large proportion of those variations of activity which we observe in ourselves. In this stream each emphasis in attention seems to be influential in producing its successor.

But finally (2-B), as we have seen that neururgic emphases, to which variations of activity are due, may be the result of influences arising out of the great undifferentiable mass of unemphatic activities against which the emphases of activity are contrasted: so we should expect to find the emphases within consciousness, which accompany variations of activity, determined often by influences which are felt to arise out of the undifferentiable psychic mass of unemphatic psychic states: i.e., we should expect to find the field of attention at such times determined by obscure influences from the field of inattention. And this we surely do find in what is called voluntary attention; i.e., in attention which is maintained as such by the reaction of the whole system of consciousness. And in this as all psychologists acknowledge nowadays, we have the root of that modification of our reactions upon the outer world which we describe as due to volition.

And now we may turn again to the problem with which we began; for if what has just been said is true we should find in experience exactly what we do find: viz., on the one hand that activities which do not involve distinguishable modifications of instinct action will have psychic correspondents of so unemphatic a form that, for the most part, they will belong to the field of inat-

tention and not to the field of attention: they will be what the common man quite improperly calls "unconscious."

And on the other hand, we should find that activities which do involve distinguishable modifications of instinct action will have emphatic psychic correspondents which will therefore be in the field of attention; and these activities will appear as what are known as "intelligent" activities.

On the physical side then we have instinct actions, fundamentally of one type, running through all minor and major nervous systems, and producing instinct actions of the whole organism. When these instinct actions of the organism are normal they are known as typical. But when some minor instinct action becomes emphatic, then the total instinct action of the organism is modified, and we have what we call the phenomenon of variation.

On the psychic side correspondingly we have what we may call instinct feelings, fundamentally of one type, running through all minor and major psychic systems, and producing what we may still call instinct feelings within the whole of consciousness. But when some minor instinct feeling becomes emphatic, then the total instinct feeling within consciousness is modified, and corresponding with physiological variation we have the phenomenon of intelligence.

## Society Proceedings

### PHILADELPHIA NEUROLOGICAL SOCIETY.

March 22, 1904.

The President, Dr. Charles S. Potts, in the Chair.

*Partial Paralysis Limited to the Arms, Following a Fall upon the Head and Back of the Neck.*—This patient was exhibited by Dr. J. H. W. Rhein.

Dr. Charles K. Mills thought it was difficult to explain the case on the supposition of hemorrhage in the pyramidal tract, because there were no symptoms of involvement of the lower limbs. He thought certain symptoms might have been due to concussion of the cord.

Dr. Wm. G. Spiller said that he had had a case similar to that of Dr. Rhein's, but in his case (Dr. Spiller's) the lower limbs were involved for a short time. In this case a hemorrhage or softening in the anterior horns of the gray matter of the cervical region of the spinal cord was the diagnosis made. He thought it possible that the diagnosis in Dr. Rhein's case was that of hemorrhage or softening in the anterior horns and the surrounding gray matter.

Dr. Dercum thought it was a mistake in cases of this kind to attempt to accurately localize the site of injury. The lesion is frequently more or less diffused, being merely accentuated in some regions of the cord and less in others. He thought the symptoms could be attributed to an injury which had been attended by concussion lesions of the cord, and possibly to injuries of the fibrous structures of the spinal column and consequent involvement of nerve roots.

Dr. C. S. Potts stated that he had seen a case of injury to the head and neck, in which the symptoms of paralysis of the arms was somewhat similar to that in Dr. Rhein's case, but these symptoms disappeared very shortly. He thought the diagnosis in his case was probably concussion.

Dr. Rhein, in closing the discussion of his paper, stated that he believed there was a lesion of the lateral columns on account of the increased reflexes, the absence of atrophy and electrical changes, together with the fact that there seemed to be some irritation of these columns, as shown in the increased knee-jerk and tendency to clonus on one side. He did not believe that the anterior horns were involved.

Dr. C. W. Burr exhibited a patient for diagnosis who had weakness and atrophy of the upper limbs, probably congenital in origin.

Dr. Dercum thought the case very interesting, and he would make his diagnosis either congenital myelopathy or intrauterine poliomyelitis.

Dr. Sinkler thought that in the absence of electrical report it was impossible to definitely make a diagnosis, but he thought that it might be a case of intrauterine poliomyelitis or congenital deficiency of the anterior horns.

Dr. Gordon thought the case was one of congenital poliomyelitis. He said there was some analogy with the case, reported recently by Drs. Frankel and Onuf in *American Medicine*. As Dr. Burr's patient presented some exalted reflex phenomena, there might be an additional lateral sclerosis.

Dr. Spiller remarked that the patient reminded him very much of a case reported by Raymond, in which the diagnosis was hemorrhage



into the anterior horns of the spinal cord. The symptoms were present from birth, but at the autopsy it was shown that the diagnosis made was wrong, and that there was a bilateral paralysis of the brachial plexus in association with a cerebral lesion. He thought that Dr. Burr's case was one of poliomyelitis or myelitis.

Dr. McCarthy thought it was not a case of poliomyelitis but that the symptoms were due to a malposition *in utero*, causing pressure on the brachial plexus.

Dr. Rhein said that in the absence of electrical examination it was impossible to make a definite diagnosis.

Dr. Sinkler drew attention to the similarity of some of the symptoms in this case to congenital club foot, where the contractions were due to poliomyelitis.

Dr. Eshner, while agreeing that the case most nearly conformed with the symptomatology of anterior poliomyelitis, perhaps of intrauterine or prenatal origin, suggested that the possibility of muscular dystrophy should not be left out of consideration.

Dr. Burr did not think the condition was due to a malposition *in utero* but as he did not know anything of such conditions it was impossible for him to judge. He thought the case was one of poliomyelitis or agenesis of some of the cells of the anterior horns of the spinal cord, and that it was not an inflammatory condition. He did not think there was any case on record of an autopsy of a congenital poliomyelitis. He thought that the pathological process must be in the cervical region.

*A Microscopical Study of a Spinal Cord which had not been Compressed by Displaced Vertebra in a Case of Pott's Disease.*—This paper was read by Dr. Alfred Gordon.

Dr. Spiller, in replying to a question of Dr. Gordon's, regarding the resemblance between Raynaud's bodies and the Pacinian corpuscles, said that there was some resemblance, but he was not aware that the peculiar multilocular cells were found in the Pacinian corpuscles.

Dr. Pickett, in discussing Dr. Gordon's case, said he had studied recently two cases of injury to the spinal cord. In one of them the cord at the level of the trauma (sixth thoracic segment) showed relatively slight change, but did show extensive secondary degenerations by the Marchi method both above and below.

In one of Hoche's classic cases of secondary degeneration in Pott's disease, it had been impossible for von Recklinghausen, who performed the autopsy, to determine the level of compression of the cord by naked eye examination, yet the tract degenerations were found to be extreme.

It must be remembered that compression and its consequences may occur without local destruction of the cord.

Dr. Gordon drew attention to the comparative rarity of cases of Pott's disease where the spinal cord is free in the spinal canal, and still the pathological changes in the cord are very marked.

*A Case of Myasthenia Gravis and a Case with Symptoms of Grave Hysteria and Bulbar Involvement.*—These were reported by Dr. Charles K. Mills.

Dr. Burr thought that Dr. Mills' discussion was interesting, and that there was a possible confusion in the diagnosis between myasthenia gravis and hysteria. He remembered one case he had in which the fields of vision were reversed, and also another case of hysteria where there were some bulbar symptoms.

Dr. McCarthy remembered a case which he reported with Dr. Burr where the symptoms of myasthenia gravis developed after a kick, which was followed by a miscarriage.

Dr. Riesman, discussing Dr. Mills's case, said that last year he had reported to the society a case of myasthenia, and at that time had advanced a hypothesis that he desired to recall to the members. The case reported was that of a physician in the western part of this State, who, without any adequate cause, had become profoundly prostrated, so that he could hardly lift his limbs. When on his back he found the greatest difficulty in turning on his side; and when, on one occasion, a pillow fell upon his face, he nearly suffocated before he could toss it away. There was no true paralysis of the limbs, and the physicians in attendance had made the diagnosis of neurasthenia. During the course of the affection a facial paralysis developed, but did not last long. The duration of the acute attack was about ten days, but the muscular weakness persisted for many weeks.

In making a report of the case the speaker had drawn attention to a certain analogy between it and cases of Addison's disease. One of the most characteristic symptoms of the latter affection was great muscular asthenia, a symptom also present in the experimental animals in which the suprarenal glands had been ablated. The muscular weakness was due either to the absence of the essential secretion furnished by the healthy adrenal, or to the accumulation of metabolic poisons that it was the function of the adrenal to destroy. It was possible to conceive of a functional inadequacy of the adrenal that might temporarily produce phenomena analogous to those following extirpation or destruction of the glands by disease.

Dr. Riesman offered the hypothesis that there might be cases of myasthenia due to functional inadequacy of the adrenal, only tentatively; for he himself realized that he had not very much ground to stand upon. He thought, however, that it might be made the basis of therapeutic action.

*Two Fatal Cases of Landry's Paralysis with Autopsy Findings in One of Them.*—This paper was read for Dr. Theodore Diller.

Dr. Mills thought the cases could be designated as cases of multiple neuritis.

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April 26, 1904.

The President, Dr. Charles S. Potts, in the Chair.

*The Relation of the Fifth Nerve to the Argyll-Robertson Pupil.*—This paper was read by Dr. William Pickett. He offered a new hypothesis, namely, that the light reflex being accomplished through the optic and oculomotor nerves, the movement of the iris in accommodation and convergence may depend on the integrity of the *trigeminal* and oculomotor nerves, and thus be independent of the optic nerve, the trigeminal conveying a sense of position of the eye-balls to the oculomotor nucleus, perhaps through the posterior longitudinal bundle.

The fifth nerve is not often degenerated in tabes, and in this way the Argyll-Robertson phenomenon could be explained.

Dr. Pickett had undertaken to test this hypothesis by studying the iris-movements in five cases in which Dr. W. W. Keen had removed the Gasserian ganglion. The results were equivocal; perhaps because there was return of sensation in the fifth nerve distribution, the operation having been done years (from 7 to 12) ago. In a recent case of Dr. Charles H. Frazier's, now under Dr. de Schweinitz's care, a severe keratitis vitiated the result.

Dr. Spiller commented on a few of the points brought out in Dr.

Pickett's paper. In regard to the fibers transmitting the pupillary reflex he thought there were so many fibers in the neighborhood of the corpora quadrigemina that might convey the pupillary reflex that we cannot at present limit this reflex to any one bundle. It would be difficult to trace degenerations in the fibers conveying this reflex by the hematoxylin method of Weigert, on account of the mass of fibers in that region. He did not think degeneration could be traced even by the Marchi method.

He thought the point Dr. Pickett raised in regard to the pupillary reflex depending upon muscular sense was a new and very ingenious idea, but would have to be worked out more thoroughly.

Dr. Pickett, in closing the discussion of his paper, stated that he had forgotten to mention the sense of weight. He also remarked that a fourth set of fibers is sometimes connected with the name of Meynert—the optic radiations.

*A Case of Rhizomelic Spondylosis v. Bechterew's Type.*—This case was exhibited by Dr. D. J. McCarthy. He stated that the case was an example of what might be called a purely clinical type of rhizomelic spondylosis of von Bechterew's type. The patient had had tuberculosis, and afterwards developed rheumatism, or rheumatoid arthritis, affecting the spine. He had had some pain and swelling in the knees but no evidence of it now exists. He thought the affection of the chest was probably due to a spinal condition and not to lung involvement, which was comparatively slight.

Dr. Gordon said that as von Bechterew's type has a distinct history of trauma and heredity, he did not see how Dr. McCarthy could designate his case one of the von Bechterew's type. He stated that while one case may be of the von Bechterew type, nine other cases may be of mixed types.

Dr. McCarthy, in closing the discussion on his case, stated that he did not show it as one of the von Bechterew type, but as a case of rheumatoid arthritis, and that if rheumatoid arthritis can cause symptoms similar to a case of the von Bechterew type he saw no use of describing a von Bechterew type.

*A Case of Tremor.*—This was exhibited by Dr. Gittings. A negro, 40 years of age, employed in a cocoa factory, had worked at a machine which subjected his body to a constant marked vibration, especially the left hand and arm. He had been thus employed for four years. His family history was negative, and he had had no previous illness, no specific history and no alcoholic history. He had used tobacco in moderation. About a year ago he noticed a tremor of the lips and limbs, which has continued since. He has no sensory disturbances. His general health is good. During the last few weeks the tremors have increased, and he now has great difficulty in using his hands. At times during the last few months he has had vertigo. Upon examination he appears well nourished, and his muscles are well developed. There is absence of wasting, although the left limbs are smaller than they should be in a right-handed person. The pupils react sluggishly in accommodation, and not at all to light. He has a coarse tremor of the lips while speaking. The lips are quiet in repose except when the patient is excited. The tongue protrudes straight. The speech is slow, but he does not know whether it is changed. The right arm is quiet in repose, but there is a slight, coarse tremor when he is using it. In the left hand and arm this tremor is more easily provoked and is more marked. His gait is slower than normal. He throws the left limb slightly. The patellar reflex is slightly increased in the right leg, and distinctly so in the left. His station is impaired. Co-ordination is impaired, and more in the left arm and leg. Muscular power in arms and legs seems unimpaired.



He has difficulty sometimes in beginning micturition. The bowels are slightly constipated. He has lost the power of erection.

The most interesting point in this case is the occupation to which the man has been subjected. The tremor is less now than it was ten days ago when he stopped work. Dr. Gittings wished to have the opinion of the Society as to the diagnosis, and as to the possible effect of the occupation as an etiological factor.

Dr. Spiller was unwilling to make a diagnosis from a hurried examination of the patient. He thought the man's occupation had an important bearing upon his symptoms. In view of the fact that the man had been employed for four years at a machine which caused a constant vibration of his body, he thought the tremor might be an occupation tremor. He also stated that in his brief examination of the case he had not obtained the ankle clonus or Babinski reflex.

Dr. Gittings, in closing the discussion of his case, stated that he had nothing further to add except that in his examination of the case, prior to exhibiting it, ankle clonus had been slight but unmistakable. The Babinski reflex he had been in doubt about, but Dr. Judson, who saw the case with him, thought there was a slow extension.

*A Case of Dislocation of the Atlas as Shown by a Skiagram, Causing Paralysis of the Left Arm and the Syringomyelic Dissociation Symptom on the Opposite Side.*—Dr. James Hendrie Lloyd exhibited this patient.

Dr. Spiller stated that in regard to the symptoms existing in the right arm, and therefore a portion of the spinal cord at a distance from the dislocation being involved, he had had a case which throws some light upon Dr. Lloyd's case. His patient received a severe injury, and because of the paralytic symptoms in the upper limbs he placed the site of spinal cord injury in the spinal centers controlling the upper limbs. The patient lived several weeks. At the post-mortem examination the lesion was found higher than was first supposed. The man had a traumatic myelitis several segments above the area supposed to be affected, but lower in the cervical region nerve cells of the anterior horns were found degenerated. Dr. Spiller thought it was very likely that in Dr. Lloyd's case there had been an alteration of the nerve cells at a distance of several segments from the seat of dislocation of the vertebræ.

*Some Observations on the Sensory Segmental Area of the Umbilicus.*—This paper was read by Dr. W. G. Spiller and Dr. T. H. Weisenburg.

*A Pathological Study of Six Cases of Paralysis Agitans.*—This paper was read by Dr. W. G. Spiller and Dr. C. D. Camp.

*Transition of Obsessions to Delusions, with Report of Three Cases.*—This paper was read by Dr. Alfred Gordon.

Dr. Lloyd thought the paper very interesting, and said the Society did not often hear papers containing such careful psychological analyses. He differed slightly with Dr. Gordon as to the relationship of obsessions to delusions. He thought obsessions were not so nearly allied to delusions as to hallucinations. Just as an hallucination is primarily a sensory affection, so is an obsession a motor phenomenon—an impulse. It is, therefore, a question whether an obsession can ever pass into a delusion; although, doubtless, it can promote or confirm delusions, just as an hallucination may do. The man who had an obsession to be constantly praying, did, in his attempts to analyse the thing and to bring relief to his mind, gradually build up a delusion, but it could hardly be said that the obsession was changed into the delusion. It was merely the exciting cause of the delusion.

Dr. Pickett stated that Dr. Mills regards obsessions as rudimentary paranoias, while Dr. Dercum adheres to the teaching that they are neuropathic neurasthenic affections. The frequent association of obsessions and hallucinations had been noted some years ago by Crainer,

Klinke and others. They seem, as Dr. Lloyd suggests, alike in their nature. Although this idea of the transition of obsessions into delusions is accepted by many, he doubted very much whether there is a true psychological progress from the one to the other. Obsessions are prominent in dementia præcox, but he had not observed any particular relationship of them to the delusions in this disease.

Dr. Gordon, in closing the discussion on his paper, said that the object of this essay was to show that an obsession may sometimes become a delusion, and this happens when the patient ceases to analyze the obsession. He did not see how this could be considered otherwise than a transition from an obsession to a delusion, as the delusions in his cases were the direct derivatives of the obsessions. He stated that he had also noted, like Dr. Pickett, obsessions in dementia præcox, paranoia, melancholia, etc., and that it practically goes to show that many patients suffering with mental disorders have previous histories of neuropathic attacks. Transformation of obsessions into delusions were observed by others, and Dr. Gordon's object was to put on record new cases of this interesting occurrence.

*Two Cases of Transitory Severe Myokymia and Myotonia.*—These were reported by Dr. David L. Edsall.

# Periscope

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## NOUVELLE ICONOGRAPHIE DE LA SALPETRIERE

(Vol 17, 1904, No. 2, March-April.)

1. A Case of Kyphosis of Articular or Muscular Origin. BRISSAUD-GRENET
2. Malformations of the Spine. (1) Sciatic, with Kyphosis and Homologous Scoliosis; Cure and Complete Straightening. (2) Three Cases of Rheumatic and Ankylosing Spondylosis.
3. The External Aspect of the Dendrites of the Nerve Cells of the Anterior and Posterior Quadrigeminal Tubercles in the Higher Vertebrates. F. CZARNIEKI.
4. A Case of Cerebral Tumor of a Psycho-Paralytic Type. E. CORNU.
5. A Case of Friedreich's Disease, with Autopsy. PIC. and BONNAMOUR.
6. Ergotherapy and Psychotherapy. BIANCHINI.
7. New Documents on the Possessed and the Sick in Byzantine Art. HEITZ.

1. *Kyphosis*.—A description of a case involving the dorsal and lumbar region of the spinal column unaccompanied by complete vertebral ankylosis. In the explanation of this case the authors are inclined to believe that the process is probably due to some muscular involvement, and for this reason is somewhat similar to the same condition found in old people and in certain professional kyphoses. The report of this case is illustrated by some good photographs, which demonstrate very well the points brought out in the clinical description. The age of the patient, 37, is an interesting feature of the case.

2. *Spinal Malformations*.—Clinical descriptions of cases illustrating these conditions, accompanied by photographs. The discussion in respect to the etiology and to the differential diagnosis of these cases is not abstractable.

3. *Dendrites in Quadrigemina*.—This is a histological study of a region which, according to the author, has received scant attention. The material for this study was furnished by the brains of mice and rabbits, which were removed from the skull after the animals were decapitated. The quadrigeminal bodies were separated from the adjoining structures and stained by the rapid method of Golgi-Ramon y Cajal. The author calls attention to the fact that there is a marked resemblance between the dendrites of the cells of the anterior quadrigeminal bodies and those of the anterior horns of the spinal cord, and between those of the periphery of the bodies and the posterior horn cells of the cord. Further than emphasizing this external resemblance the author does not go.

4. *Psycho-Paralytic Type of Tumor*.—This case is reported because the clinical symptoms and the anatomical findings in the evolution of the disease corresponded, and the autopsy showed an interesting multiplicity and systematization of the anatomical changes. It forms a contribution to the psycho-paralytic variety of cerebral tumors, and in a measure supports the theory of the toxic-infectious nature of the symptoms. This theory has been advanced by Dupre and Deveux in 1901. Case—Woman, 36 years. The disease developed for 15 months. It began with occipital headache, motor symptoms, paresis and awkward movements of the extremities, psychical symptoms, progressive mental enfeeblement, difficulty in speech, tremor, generalized paresis, facial spasm, exaggeration of the reflexes, inequality of the pupils, vomiting, constipation, mental decline, temperature. Autopsy: Tumor about the size of a walnut, of bony consistency, situated



in the frontal lobe at the point of the caudate nucleus. Crossed atrophy of the cerebellum in relation to the caudate nucleus, bulbar and crossed medullar atrophy in relation to the cerebellum. The author calls attention to the fact already accentuated by Klippel that in addition to the symptoms produced by a cerebral tumor which may be explained by the increase in pressure and by the localization of the growth, there are a number of others which cannot be so explained. These latter are due to the cortical irritation, probably toxic in nature, produced by the tumor. As a proof of this contention the existence in the neighborhood of tumors of areas of encephalitis is mentioned. In this case the tumor had existed for a time without causing any symptoms other than those due to its special localization until, on account of the irritation due to the presence of a foreign body or a toxic cause, a meningo-encephalitis was produced. This led to acute symptoms. The possible toxic effects of tumors of the brain forms the real interest of this paper.

5. *Friedreich's Disease*.—This is an account of a case of Friedreich's disease, with autopsy. From a clinical point of view the case does not differ from the usual case. The atactic gait, the spontaneous movements, flat foot, the speech symptoms, the absence of the knee reflexes, the absence of pain, the retention of the sphincteric reflexes, appearance of the symptoms in infancy. In this case there was no family tendency to the disease. The histological examination showed slight sclerosis of the external pyramids, and very marked lesions in the IX, X and XII pairs. Sclerosis in all levels of the bulb and the medulla, the posterior column, the Burdach more affected in the dorsal cord and the column of Goll more in the cervical cord. The upper portion of the dorsal cord and the cervical cord show sclerosis in the crossed pyramidal, the lateral and the cerebellar tract. Atrophy of the posterior horns, sclerosis of Lissauer's zone, and sclerosis of the posterior roots equally marked in all regions of the cord. There were in this case cerebral lesions. Such lesions are very rare in this disease. An area of softening which produced definite symptoms was noted. In conclusion the author adds that beyond the group of symptoms more or less common in every case of Friedreich's each case presents a clinical picture and a pathological finding peculiar to itself.

6. *Therapy*.—This is a careful consideration of the place that work should have in the treatment of mental cases and of its psychology. The basis of the work therapy, as applied to such cases, lies in the fact that mental cases are, as a rule, physically sound, or at least the majority of them are. In 1886 ergotherapy was introduced in the Girifalco institution, of which the author is the directing head. It now constitutes there the fundamental plan of treatment. The statistics of this method are of great interest. Forty-seven per cent. of the patients can be treated in this way; 23 per cent. more women work than men. The various types of mental disease are studied statistically from the standpoint of the adaptation to the work therapy. These tables are of great interest. They relate to the following point: The proportion between workers and non-workers from a clinical point of view.

The relation of the sexes and work clinically considered, the various sorts of work used in the treatment, a comparison in the results of treatment in this asylum and others, shows a marked improvement in the cured diseases. The following conclusions are noted by the author: Outside of the strictly clinical methods, that is, the direct medicinal treatment of mental cases, ergotherapy and psychotherapy, that is, the treatment of the intelligence by reëducation in mental and physical work, play a fundamental rôle. This method is based upon an elemental law of human psychology. All muscular and intellectual work should be directed towards a precise predetermined end. In the insane such an end cannot

be spontaneously attained, on account of the mental defect. It is the duty of the alienist to provide this end by means of reëducation in work (ergotherapy) and mental suggestion (psychotherapy). The application of such methods depends upon two important facts in the biology of the insane: 1. There exists in all of them states of consciousness. 2. In the great majority of cases the more common vegetative functions are not altered. Physical work is, therefore, possible, owing to the integrity of the muscular system and their innervation. The treatment of the insane by means of physical work has for its sole and immediate purpose the cure of the morbid intellect, the abolition of force and restraint, and the somatic and psychic well-being of the chronic insane. Thus the system of ergotherapy is established, and it can be said of it that the percentage of workers should be equal to that of the permanently cured; the mortality and recurrences reduced to a minimum; the number of discharged becomes greater; the cost of maintenance is reduced to the minimum. Ergotherapy is the most natural and the most simple means of applying non-restraint and the open door. The author believes that in this short résumé he has expressed a large part of the scientific and human mission of the clinicians who treat the insane. (This paper is worthy of careful consideration, especially from the point of view of actual results. See tables in the original article.)

SIDNEY I. SCHWAB.

ARCHIVES FÜR PSYCHIATRIE UND NERVENKRANKHEITEN

(Vol. 38, 1904, 1 Heft.)

1. Metastasis to the Brain of the So-called Malignant Deciduoma (Syncytioma). ERNEST SIEFERT.
2. The Pathology of Self-Consciousness. A. PICK.
3. A Contribution to Hysterical Sub-Consciousness. GANSER.
4. A Contribution to Microcephaly and Macrogyry. M. PROBST.
5. Report of a Case of Distoma Invading the Brain, with the Symptom Complices of Jacksonian Epilepsy, Chorea and Athetosis. TANIGUCHI.
6. An Imbecile Prodigy.
7. The Fixation of the Axis Cylinder Processes in the Fibers of the Central Nervous System, Including a Consideration of the Histology of the Axis Cylinders in General. WARNCKE.
8. An Atypical Case of Bulbar Paralysis, without Anatomical Findings. H. F. STETZNER.
9. Concerning Crossed Paralysis in Cold Perception. E. MAI.
10. Dwarfism not Dependent upon Changes in the Thyroid. L. FERRANNINI.
11. The Part the Russian Psychological Literature Plays in Delineating a New Clinical Type—Idiophrenia Paranoides. J. SIKORSKI.
12. The Structure of the Anterior Cerebral Artery in Apes, Anthropoid Apes and Man. M. ROTHMANN.
13. The Proceedings of the Berlin Society of Alienists and Neurologists, March 10, June 9, July 14, November 10 and December 8, 1902, and January 12, 1903.
  1. *Metastasis in the Brain*.—Deciduomata of malignant type have been known since 1876, but the author can find metastasis in the brain recorded in only seven cases. One of these is recorded jointly by two American writers, Davis and Harris, who reported their case in the *American Journal of Obstetrics* for July, 1900, under the title "Syncytioma Malignum and Ectopic Gestation Causing Pernicious Anemia." Another case by Gottschalk is reported under the name sarcoma chorio-deciduo-cellulare.

The seventh case in the series is that of the author. The patient was a woman, aged 25 years, married, with four children. Nine weeks after the birth of the last child hemorrhage from the uterus set in. This continued for three months, the patient growing weaker bodily and mentally. For a month before admission to the hospital brow pain had been marked, and for two weeks previous paraphasia was frequent. A polypoid tumor, pigeon egg in shape and comparatively hard, was diagnosed and removed from the uterus. It was thought that meningitis was possible. The patient at the time did not speak spontaneously, and did not answer questions except when asked in a loud, firm tone. The arm and leg on the left were moved frequently and apparently involuntarily. Retention of the urine was noted. The left pupil was larger than the right. Paresis of the arm and leg on the right side, and increased patellar reflex on the same side were also observed. There were no sensory changes. Tachycardia was marked, 160 to the minute, no fever. She died two months after admission to the hospital. The autopsy showed many tumorous formations the size of a walnut in the lungs; the upper two-thirds of the spleen was also the seat of a tumor; the liver contained one as large as a hen's egg; in the left kidney there was one as large as a walnut. In the left cerebrum a large tumor was found, comparatively hard, blood-red in color, embracing the caudad part of the temporal lobe and the entire occipital lobe. Numerous punctate hemorrhages surrounded the area of the tumor. The microscopical examination of the primary and metastatic growths showed the peculiar formation of the syncytionoma.

2. *Pathology of Self-Consciousness*.—This is a brief study of the loss of personal identity. A case observed by the author is reported in detail. He is unwilling to admit the identity of these day-dream states with the automatic states in epilepsy, although he acknowledges the close relationship. The literature he quotes favors the former view.

3. *Hysterical Sub-Consciousness*.—The title of this paper is, perhaps, better expressed by the term "Borderland Cases Between Hysteria and Mental Disturbance." The main part of the paper is a discussion of the view-point of Kraepelin, namely, that hysteria is a disease *sui generis*, in which the subjects are deviates with well-marked physical and mental symptoms. Two cases are reported in which the author shows the tendency on the part of the patient to give incorrect answers, although the questions are apparently understood and the answers simple enough. Disturbance of the ego is also a common factor in the author's cases. The points raised by the author, it would appear, are entirely academic.

4. *Small Brains and Large Convulsions*.—The case reported by the author was a child three and one-half years old, an idiot girl. The brain weighed 195 g. The anatomical findings, both macroscopic and microscopic, which he describes in detail, may be summed up as a retarded development of the brain. The illustrations are particularly clear.

5. *Distoma of the Brain*.—A seventeen-year-old girl, a native of Kiushin, one of the islands of Japan where distoma of the lungs is endemic, was suddenly and without apparent cause seized with epilepsy. The first convulsion occurred about two years before death. The attacks recurred usually once or twice a month, and were preceded by sudden attacks of headache and dizziness, with twitchings of the left side of the face, later of the left arm and leg, and finally the entire body was the seat of clonic convulsions, deepening into unconsciousness. The entire attack usually lasted two or three hours. In the intervals the patient complained of headache, buzzing in the left ear, weakness of the left side of the body and uncertainty of gait. The memory was beginning to fail. The girl finally died from a fall brought on by one of these attacks. The necropsy showed two irregular cysts in the substance of the right frontal lobe. One of these was 2 to 3



cm. long and 1 cm. wide, and the other 2 cm. long and 1 cm. wide. The temporal, parietal and occipital lobes also contained cysts. These cysts contained in some instances fresh eggs, but the most contained only shells. The lungs showed old hemorrhagic points, but no distoma. The author lays particular stress in this case on the close resemblance of the symptoms to the symptom complices of Jacksonian epilepsy, chorea and athetosis.

6. *An Imbecile Prodigy*.—An account of the skill displayed by a woman, aged 22, in adding, subtracting, multiplying and dividing large sums correctly and quickly. A point of interest in this case is that this was one of acquired imbecility following an attack of typhoid fever at the age of 7.

7. *Fixation of Axis Cylinders, etc.*—A technical article describing in detail the method of von Monkeberg-Betts for the study of the axis cylinder fibrils of the peripheral and central neurones. The method is recommended, and photograph are given showing the results in fishes and frogs.

8. *Bulbar Paralysis without Anatomical Findings*.—A critical digest is given of the perforce functional cases of bulbar paralysis. The case added to the literature was that of a woman, aged 35, with good heredity and good health until the onset of the present trouble. The atypical features of the cases were the complication with a psychosis and the onset with fever. The patient was a dement, and possibly on that account the history is not so full as could be desired. She was under observation for two weeks, and during that time there was noticed choreiform movements of the head and arms and constant clonic contractions of the sternocleido-mastoid on the left. The speech was bulbar, no ptosis, the pupils equal, the right corner of the mouth lower than the left, the arms and legs were moved sluggishly; patellar and Achilles jerks not obtained, retention of urine, with later incontinence. Bilious vomiting, and deep, slow respiration with deepening cyanosis developed before death. There is much in the case to suggest auto-intoxication.

9. *Crossed Paralysis*.—A contribution to the physiology of the sensory pathway for touch. The article contains the recent literature on the subject, and thus brings the matter down to date. In the present clinical case nothing not before known is reported.

10. *Dwarfism*.—There are eleven cases in all to show the part tuberculosis, malaria, under-sized lungs and lack of development of mitral valve play in retarded development of the body. The cases were all alike in that they were the histories of males and females in whom the real age and the apparent age were widely different. This was demonstrated by the slow physical growth, the under-size, the non-appearance of puberty, and the childlike simplicity of mind. In two girls aged 19 the apparent age was only 6 and 7. The influence of improper diet was well shown in one case. These cases are what might be called high-grade in that their effects are so severe. It is conceivable, however, that there may be cases of varying degrees of intensity, in the milder forms of which the retardation or lack of development may be so slight as to constitute the class known as backward pupils, so frequently met with in the public schools.

11. *Idiophrenia Paranoides*.—This term denotes a class of peculiar intellectual character that resembles insanity and has the gross symptoms of paranoia. The Russian literature is quoted to show the frequency and completeness with which the symptom complex has been described. The article is a critical digest alone, no new cases being added to the literature. These cases are very like the paranoid type of dementia præcox.

12. *Anterior Cerebral Artery*.—A comparative study of the anatomical relations of the anterior cerebral artery in the chimpanzee, orang-outang, gorilla, gibbon and ape. In all, 33 apes, 7 chimpanzees, four oranges, 2 gorillas and 4 gibbons were examined. Of these, it is shown that in the

chimpanzee the human type of anterior cerebral artery relation is **most** frequently met with.

(Vol. 38, 1904, Heft 2.)

1. Acute and Chronic Alcohol Psychoses, and the Part the Abuse of Alcohol Plays in Causing Mental Disturbance. E. MEYER.
2. The Psychosis of Cerebral Concussion, together with a Contribution to the Cause of Korsakow's Symptom Complices. KALBERLAH.
3. The Pathological Anatomy of Idiopathic Epilepsy. N. ORLOFF.
4. Case of Blindness Completely Cured (Hermianopsia). S. TSCHIERJEW.
5. Endarteritis in Multiple Sclerosis. M. ROSENFELD.
6. Contribution to the Regeneration of Peripheral Nerves. LEMKE.
7. Hysteria and Epilepsy. BRATZ and FALKENBERG.
8. Concerning Chronic Progressive Softening of the Brain, with Remarks Regarding the Reflex of the Hard Palate. HENNEBERG.
9. Nerve Cells and Psychoses. P. KRONTHAL.
10. Opinions concerning the Lothringian Wards for the Insane at Saargemünd. ALT and VORSTER.

1. *Acute and Chronic Alcohol Psychoses.*—The first case described is one of chronic psychosis of the paranoid type (dementia paranoides) following upon delirium tremens. The patient was 33 years old, and had had delirium tremens many times. He was arrested for murdering his wife, whom he claimed had won a large sum of money in a lottery and had refused to give him any. Other delusions were well marked. Interesting points in the early history are his insubordination while in the army, and finally his confinement in prison for one year for theft. The family history showed no marked nerve disease, but was suggestive of nervous irritability. The second case was aged 35; his father a hard drinker. Visual hallucinations were a marked feature in the case. The third case was 43, and had two children, both deaf and dumb. An unusual symptom of delirium tremens in this case was a sensation as of hair on the tongue. Auditory hallucinations were present and at times very distressing. The fourth case was forty-seven, and a hard drinker since his eighteenth year. Hallucinations of hearing and of sight were noted; hypochondria was marked. In all seventeen cases are reported in detail. The deductions drawn from these cases lead the author to conclude that the part the continued abuse of alcohol plays in causing psychosis is exceedingly difficult to answer, but it is fully able to cause every form of mental disturbance; although he is unwilling to grant that the converse is true, *i. e.*, that all forms of insanity are of alcoholic origin. He further says that we can speak more positively of alcohol psychosis when there is shown a direct connection of the delirium tremens or the acute alcoholic paranoid with the mental disturbance, or when at least much nervous and mental excitement have preceded the chronic mental disturbance.

2. *Psychoses of Cerebral Concussion.*—The author points out the close relation traumatic insanity bears to that described under the Korsakow syndrome. He reports two cases and cites the cases of Wills and Weber. Although no microscopical evidence is offered, he concludes that the anatomical cause of concussion of the brain is a widespread alteration in the brain elements, including the blood vessels, nerve fibers and ganglia elements. No particular causes for the mental disturbance are known. While disturbances of the memory are an essential feature, the severity of the disturbance is very varying.

3. *Pathological Anatomy of Idiopathic Epilepsy.*—Three cases were examined. One, a woman aged 49, married, one child, dead at seventeen weeks from convulsions. The seizures in this patient began in the eleventh year, but increased greatly in frequency and severity toward the end. The

cause of death is given as tuberculosis. The glia was examined by the method of Weigert, and the cells with thionin staining. The second case was a man aged 28, married, two children, both healthy. Attacks began in his eighteenth year and increased in severity. Death occurred in status epilepticus. Sections of the brain were examined by Nissl's method. The third case was a child aged 9 months, prematurely born at seven months. Attacks began three months before death and recurred frequently as often as twenty-five times daily. Death occurred in status. Brain sections examined by Nissl's method. A fourth case, in which epileptic attacks were induced by a tumor in the paracentral convolution on the left, was also examined by the Nissl method. The findings are of particular interest in that nothing characteristic was determined, but in the chronic cases, particularly in the tumor case, marked thickening of the glia, particularly in Ammon's horn, were observed. This leads the author to speak of the possibility of a congenital sclerosis of Ammon's horn. Astrocytes (spider cells) were found in all the cases, but as the author reminds us, these cells are found also in chronic brain disease, such as paralysis, chronic alcoholism, idiocy and long-continued insanity, as well as in epilepsy. The astrocytes in epilepsy, the author thinks, have a larger body; the nucleus is larger and stains less deeply than in paralysis. Excellent photographs, seventeen in number, show the author's findings in the different cases.

4. *Cured Blindness*.—The patient was a young man aged 22. When 15 years old he received a severe fall from a bicycle. From that time he found his studies far more difficult and headache became marked, particularly in the back of the head. Six years after the fall he noticed a failure of sight, which continued to deepen until one year before examination, when the sight in the left eye was nearly gone. This condition had been diagnosed chronic central disturbance of vision and incurable; later it was diagnosed as tobacco amblyopia, again as beginning akromegaly, until finally the author diagnosed it pachymeningitis hemorrhagica interna on the right, with exudation pressing upon the optic tract. Warm tubings daily and mercurial inunctions, also daily, were ordered, with the result that within one month the patient was entirely cured. Charts of the visual fields at different periods of the treatment are shown in corroboration.

5. *Enderteritis in Multiple Sclerosis*.—An undoubted case of multiple sclerosis in a man aged 39. Lues could not be positively determined clinically. Blood vessel changes were many and marked, both in the cerebrum and spinal cord. These blood vessel changes, *i. e.*, thickening, cell infiltration and hypertrophy of the lumen, in places bore no relation to the sclerosed areas. Traces of chronic or sub-acute inflammation were found in the spinal meninges. Exudation was marked in the Sylvian artery and the arteries of the basal ganglia. At certain points complete obliteration of the lumen of the artery had taken place. The author concludes it is not possible to decide whether syphilis is the cause for the sclerosis, although he considers it highly probable.

6. *Regeneration of the Peripheral Nerves*.—An experimental study of nerve sections of rabbits aged five days, eight days two weeks and nine months. Comparison is made with the peroneal nerve of a paralytic human being and the peroneal nerve of a case of senile dementia after death. No new features were determined. The article is illustrated.

7. *Hysteria and Epilepsy*.—Thirty cases of epilepsy complicated with hysteria are here described clinically. The article is both interesting and instructive. A plea is made for a more restricted use of the term hysteroid epilepsy. It is shown that before the first epileptic attack and the appearance of hysteria one to five years elapsed in five cases, five to ten years in eight cases, ten to fifteen years in four cases, fifteen to twenty years in three cases.



8. *Chronic Progressive Brain Softening*.—The reflex obtained by striking or stroking the hard palate with the finger, resulting in firm closure of the lips, the author has never seen in healthy adults or in children. In hemiplegia it is most distinctly obtained upon the side of the paralysis. In tumor of the brain this is also the case. In double hemiplegia with cerebral softening it is most marked. The author reports two cases, one of abscess of the cerebrum showing marked softening in the corpus callosum, the other a case of double hemiplegia.

9. *Nerve Cells and Psychosis*.—A review of the function of nerve cells and their psychology, with philosophical deductions therefrom.

10. *Opinions, etc.*—Some views of domestic economy as applied to wards for the insane.

A. FERREE WITMER (New York).

#### REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(Jan., 1904.)

1. Influence of the Mind on the Body. TOULOUSE and DUPRAT.
2. Obsessing Hallucination. GIMBAL.
3. Rapid Technique for the Examination of the Blood. LAIGNET-LAVASTINE.

1. *Influence of Mind on Body*.—This article is confined to an historical exposition of the different theories that have been held up as to the nature of mind and body and their relation. A bibliography is appended.

2. *Obsessing Hallucination*.—A young woman with a marked neuro-pathic history suffers for years from fear of impending danger, especially fear that some calamity will happen to the members of her family. Later hallucinations of hearing develop and are constantly being associated with persecutory delusions. The hallucinations produced the idea of suicide. The auditory hallucinations almost invariably took the form of the words, "Your husband, your children, are dead," and by its constant repetition produced the idea of suicide.

3. *Technique of Blood Examination*.—A purely technical article, which does not lend itself to abstraction.

(Feb., 1904.)

1. Dementia Præcox, Pathological Anatomy and Pathogenesis. KLIPPEL and L. SERMITTE.
2. Observations of Animal Psychology. PIERON.

1. *Dementia Præcox:—Pathological Anatomy*.—The observations of the pathological anatomy cover the examination of four cases. The studies were very exhaustive, especially that portion devoted to measuring the number and dimensions of the nerve cells. The results showed three categories of lesions: first, the congenital abnormalities; second, those connected with the onset and course of the disease, and consisting of a granulo-pigmentary atrophy of the neurone; and third, secondary lesions consisting of arrests of growth of neurones, and also of various parts of the organism. The localization of these lesions was more pronounced in the association centers, the centers of projection being on the contrary preserved.

*Pathogenesis*.—The main symptom of this disease, the dementia, is due to a "destruction of the connections between different territories or between different cells of the cortex by atrophy of the prolongations that place them in communication with one another." An investigation of the causes assigned as productive of dementia præcox discloses a great multitude, as *i. e.*, heredity, toxines, exhaustion, puberty, auto-intoxi-

cation, etc. The pathology of the disease shows, however, that only the neurone is affected and the meninges, neuroglia vessels all escape, thus forming a very different picture from the other mental diseases accompanied by dementia, such as paresis, senile dementia and toxic-infectious dementia. In view of these facts the authors would therefore say that there is no specific cause of dementia præcox. The clinical picture is the result rather of the special reaction of the individual than the result of the hereditary or congenital vulnerability of the neurone." The nerve cell, being the most complex and highly differentiated and the most delicate among the various tissues composing the brain, is thus apt to be first affected and affected by causes too feeble to involve the other cerebral elements. Dementia præcox is, therefore, not so much the result of a specific pathogenic agent as the result of the mode of action of the cause, whatever it may be.

2. *Animal Psychology*.—This article contains little of interest to psychiatry. WHITE.

#### CENTRALBLATT FUER NERVENHEILKUNDE UND PSYCHIATRIE

(Vol. 27, 1904, March.)

1. Visceral Delusions in Manic-Depressive Insanity. DR. KARL PFERSDORFF (Strassburg).
2. Critical Comments on Ziehen's Paper: "Some Defects and Difficulties in the Grouping of Mental Diseases." PROF. NISSEL.
3. On Researches with "Veronal" in the Excited States of Paralytics. DR. K. ABRAHAM.
4. Curative-Gymnastic Treatment in the Bath. PROF. DR. W. VON BECHTEREW.

1. *Visceral Delusions*.—The mixed state of manic-depressive insanity comes on comparatively late in life, lasts longer, and is more severe than ordinary forms. It results from the crossing (Weygandt) of two symptom-groups, exalted mood, psychomotor excitement and flight of ideas on one hand, with depression, inhibition and difficult thinking on the other hand. The index of this state is in the delusions, which are definite. Pfersdorff gives notes of five cases, in most of which an exalted mood was combined with inhibition, excitement being episodic only and causing stereotyped movements, cries, and delusions which are of a stereotyped and intestinal character. These delusions disappear with the motor excitement, and are a product of the accompanying inhibition. Visceral sensations are common to many psychoses and neuroses, but are corrected by thought; in manic-depressive insanity, thought being inhibited, delusions of a foolish (unsinnig) character arise from them. Visceral delusions may be grouped into those of the head, chest and abdomen. Slighter intestinal sensations belong to neurasthenia, which sometimes assumes a "circular" form (Sollier, Dünin).

2. *Nissl on Ziehen's Classification of Insanity*.—In the *Monatsschrift für Psychiatrie und Neurologie* for February, 1904, p. 147, Ziehen spoke of "fashionable psychiatric classifications" in a way which roused the ire of Nissl. Ziehen also spoke against "mystic entities" of classification, to which Nissl replies that "the natural classification is one according to the kind of brain-changes whose expression the psychoses are," as paresis, brain-syphilis (gummatous), and senile dementia, but where this knowledge fails we are driven to grouping by symptom pictures.

3. *"Veronal" in Paretic Excitement*.—Abraham says that trional has given satisfaction for years in the Dalldorf Asylum, except for its bitter taste, and the fact that in time it loses its effect upon the patient. The claims of a sedative power made for veronal led Abraham to test it in a

number of paretics who had been treated for some time with trional in their periods of excitement. He gave from a half to one gram of veronal in hot milk or coffee about an hour after each meal. In one case the drug lost its power in a few days; in others the after-effects (headache, drawling speech, hebetude) were very pronounced.

4. *Bath Gymnastics*.—Von Bechterew speaks of the increased ease of moving the limbs under water, enabling a hemiplegic thus to take active exercise when muscular weakness prevents even lifting the limbs in the air. Moreover, contractures and spasms are mollified by warm baths.

(Vol. 27, 1904, April.)

1. The Significance of Lumbar Puncture for Psychiatry. F. NISSL.
2. Body and Soul. ADOLF HOPPE.

1. *Lumbar Puncture in Psychiatry*.—Nissl says those who oppose his measure know of it only by hearsay. He goes over the technique of the operation, advising against local anesthesia in the insane, as the puncture gives them little pain. If the patient will not get into position for it, etherization is advisable, lasting but a few minutes. He never removes more than from 3 to 5 cc. of fluid. If it comes in a stream he checks it with his thumb. The next puncture should not be made in less than eight to ten days. Cytologic, bacterial, physical and chemical studies of the fluid are available; and also that of pressure. A pressure above 150 mm. is pathologic; in serous meningitis and in brain tumor it may give rise to 700. Coughing, etc., may cause a fluctuation from 130 to 430 mm., as may sitting up after being prone. As to the chemistry of cerebro-spinal fluid Sicard found no serum-albumin in it normally, but a small quantity of globulin. Nissl, however, finds albumin to be a normal constituent, though its increase to 1:1000 or 3:1000 has pathologic significance, showing lesion of the meninges. Globulin also is important normally, and by its increase pathologically, according to Guillain and Parant, these chemical changes go parallel with the lymphocytosis. Nissl gives at great length a technique of chemical analysis elaborated under the advice of Cohnheim, and tables of results in a large number of cases examined by lumbar puncture and clinically. His conclusion is that lymphocytosis of the cerebro-spinal fluid is a sign of paresis, but must be considered with other signs, but that only once has he among his insane cases been really helped to a diagnosis by lumbar puncture; its importance for psychiatry should not be overestimated.

2. *Body and Soul*. A critical review delivered at a scientific gathering of the physicians of Alt-Scherbitz.—This contains psychological speculations on the old, old question.

(Vol. 27, 1904, May.)

1. On the Rôle of the Orbicularis Oculi Muscle in Cortical and Subcortical Facial Paralyses. PROF. DR. W. VON BECHTEREW.
2. Regarding Kronthal's Paper: "Nerve Cells and Psychoses." PROF. NISSL.

1. *Orbicularis Oculi in Facial Palsies*.—Bechterew says the exemption of the upper face from disturbance in cortical and subcortical facial paralyses has been best explained by the hypothesis of bilateral innervation of the upper branches of the facial. His experiments indicate that these branches have a separate center in the cortex—the back part of the second frontal gyrus in monkeys—by which the eyebrows are raised, the lids closed, and the ears moved on both sides. That curious symptom discovered by French observers, inability to keep the affected eye open when the sound one is closed, though both move together, and the affected eye



may be closed alone, indicated particularly lesion of this upper-facial path or center above the seventh nucleus.

2. *Kronthal's Paper on Nerve-Cells and Psychoses*.—It is Kronthal that Nissl is after this time. He attacks eight "inconceivable errors" of Kronthal's, all of histological interest but not clinical.

(Vol. 27, 1904, June.)

1. A Case of Veronal Poisoning. P. T. HALD.
2. Concerning the Symptomatology of Cerebral Encephalitis, Especially on an Epileptic Form of this Affection. DR. W. SPIELMEYER.

1. *Veronal Poisoning*.—This case was studied at the Government Hospital at Copenhagen. A woman of 30, accustomed to taking one-half gram of veronal for insomnia and being suicidally inclined, one morning took nine grams of the drug. That afternoon she was found in a deep sleep and her stomach was washed out. Next day her head was bent back, and there were tetanic contractions of the body. A pemphigus-like eruption appeared. Sleep continued through the second day; on the third the patient was clear and complained of pains in neck and limbs. Hald thinks the kind of spasm in this case is pathognomonic of veronal poisoning; it was noted in a case reported by Gerharth.

2. *Epileptic Form of Encephalitis*.—According to Spielmeyer (of Freiburg) the triad of symptoms in *Grosshirnenzephalitis* is: coma, paralysis, and motor excitation. At least one of these symptoms is present in every case, combined with signs of an infectious process. "Comatose encephalitis" (Leichtenstern), the first form, generally arises in the convalescence from influenza. It is less favorable prognostically than the second form, which has the same etiology and is sometimes called "apoplectic influenza." This is a bad name, as the paralytic signs—hemiplegia, monoplegia, aphasia, etc.—are progressive (Oppenheim), though rapid in onset. The third, or *epileptic*, form of encephalitis, smallest of the three groups, is treated of at length by Spielmeyer. It appears, when typical, as "acute transient epilepsy," the convulsions are general or they are Jacksonian; in children they are the most constant initial symptom, and if the motor zone has been damaged they persist, or may return later in life. Spielmeyer cites several cases of this epileptic form of encephalitis, differing in the location and character of their lesions; Schmidt's, with widespread hemorrhagic destruction of the basal ganglia; Köppen's, with hemorrhage from the left Sylvian artery, and his own two cases, showing damage to the motor cortex and subcortex of the nature of perivascular infiltration with plasma-cells, similar to that found by Nissl in paresis. The condition which the epileptic form of encephalitis most resembles is brain tumor, which differs in its insidious beginning, slow but choked progress, and choked disk. It also resembles "Meningitis serosa" (Schultze and Kranhals), which has not been studied microscopically and may be an encephalitis.

WILLIAM PICKETT (Philadelphia).

#### MISCELLANY

ACUTE ASCENDING PARALYSIS OF THE TYPE OF LANDRY. H. G. Gordinier (Albany Medical Annals, Jubilee Number, Jan., 1904).

*Case I*.—Rapid ascending type of motor paralysis, terminating fatally, with bulbar symptoms, nine days after onset. No sensory symptoms preceding or occurring during course of disease. Previous history of an intestinal autointoxication occurring two weeks prior to the onset of the paralysis. Anatomical findings, indicating a primary degeneration of the peripheral neurones.

*Case II.*—Acute ascending paralysis of type of Landry, with recovery. Onset probably following an acute infection (la grippe?). Invasion, in a rapidly ascending manner, of the muscles of the extremities and trunk. Absence of bulbar and sensory symptoms. Complete restoration to function of all the paralyzed muscles in about eight weeks, without muscular atrophy or altered electrical reactions.

J. E. CLARK (New York).

MYASTHENIA GRAVIS. Henry Hun, George Blumer, George L. Streeter (Albany Medical Annals, Jubilee Number, Jan., 1904).

Locomotive engineer, Scotch, 32 years, unmarried. No hereditary taints. Habits good. No known cause except possible over-exertion or fright. Gradual ptosis, muscular weakness extending downwards to the neck, arms and hands; six months later, to the legs. Weakness, at first limited to left side, at nine months involved almost all muscles, both sides of body. Involvement of facial muscles gave peculiar character to smile and laugh; whistling impossible. Speech and deglutition much impaired. Dyspnea prominent symptom. Muscular weakness of varying intensity, worse toward end of day, associated with rapid tiring of muscles. Faradic current to muscles gave myasthenic reaction, muscular contraction to galvanic current induced by using ten times the strength as normally required. No R. D. No muscular atrophy; few, if any, sensory disturbances. Course of disease chronic, variable, slowly progressive, terminating in death, from suffocation or dyspnea, in less than two years from onset.

Post mortem: Macroscopic and microscopic; no changes in central or peripheral nervous organs, no distinctive or noteworthy changes in any of the organs of the body except an infiltration of the muscles and thymus gland with lymphoid tissue, and a proliferation of the glandular elements of the thymus, the changes in this gland suggesting lymphosarcoma.

J. E. CLARK (New York).

LOCALIZING SIGNIFICANCE OF SO-CALLED HEMIANOPIC HALLUCINATIONS.

Prof. A. Pick (Amer. Jour. of the Med. Sciences, Jan., 1904).

Not only scotoma scintillans may be produced by a lesion below the cortex, but more complicated phenomena, real hallucinations, may occur in the hemianopic field of vision from focal or functional lesions in the optic tracts. This is proven by cases not verified by autopsy, but in which the diagnosis of the site of the lesion is clearly shown. *Case I.* had a slight apoplectic seizure one and one-half years ago; he was stunned but not unconscious. A fortnight later he had another attack, followed by hemianopia, which was homonymous and on the right side. There was paraphasia and parapraxia. About six months previously, while walking, he suddenly observed that everything on the right side of the field of vision was reddish, changing later to green. Then he noticed for about half an hour at his right side a dog walking along with him. Again, he saw a girl with a colored shawl. The patient exhibited for a long time the faulty halving of horizontal lines first described by Liepmann, which, however, disappeared. The lesion in this case is evidently in the angular gyrus, involving especially its medullary mass. The permanent hemianopia could be caused by the focus extending into the visual radiations in this region. Thus, this first case could be looked upon as one contrary to the older theory. In a second case, with a history of a fall on the head one year previously, about four months previous to the first examination he noticed that his left leg "went to sleep" and there was disturbance of vision toward the left. There was no apoplexy. A few days later he noticed all sorts of figures, or imagined some one was sitting next to him toward the left. An eye examination showed binocular

left-sided defect of vision, with straight limitations, and questionable hemianopic pupillary reaction. There were also hemianesthesia sinistra.

In this case the focus is still further advanced and localized in the optic tracts, probably in the posterior limb of the internal capsule, where the most posterior portion of the optic thalamus meets the external geniculate body.

The third case is very similar to the second, the patient seeing all sorts of phantoms in the blind halves of the fields. The localization of the lesion is practically the same as the second case. There were, however, two symptoms of note: (1) Evident "central" pains in the left arm, which are usually related to a lesion in the region of the Charcot *carrefour sensitif*. (2) Dryness of the mouth, which was probably due to a thalamic lesion. In addition to these cases he also reports a case of scotoma scintillans bitemporale which progressed to real hallucinations. The phenomena appeared suddenly and disappeared the next day. The patient was very intelligent, and accurately described a case of scotoma scintillans hemianopicum. The fact which makes the case significant is that it is of the bitemporal variety, which is unique in the literature, and seems to prove that the lesion provoking the process was in the chiasm. Then the transition of elementary phenomena of scotoma scintillans into real hallucinations confirms the theory that hemianopic hallucinations may be produced by a variety of localized excitations in the optical tracts, and not in the occipital lobe only.

C. D. CAMP (Philadelphia).

NERVOUS PHENOMENA ASSOCIATED WITH MOVABLE KIDNEY. Wharton Sinkler (Jour. Am. M. Assoc., Feb. 13, 1904).

The degree of pain varies from a dull aching to acute lancinating pain, usually referred to the region of the kidney, and more or less constant. Neuralgic pains in different parts of the body are complained of. Irritable bladder, dysmenorrhea, disturbances of the liver and gall bladder are sometimes present. Dyspeptic symptoms are almost always present. The most common symptoms associated with movable kidney are disorders of the nervous system, such as hysteria, neurasthenia, and mental depression. Fifty per cent. of cases of movable kidney present no symptoms whatever. The neurasthenic cases are thin and suffer much from gastric disorders, with attacks of severe epigastric pain, with retching. Flatulence and palpitation of the heart are common, poor sleep, fatigue after exercising, and general nervous irritability. There are various reflex hysterical disturbances met with in movable kidney, general hysteria major, hypochondriasis, and mild mental disturbances. These may or may not disappear after operation. These nervous phenomena rarely occur in men, but if met with in that sex are very intense. NOYES (New York).

PERINEAL ZOSTER, WITH NOTES UPON CUTANEOUS SEGMENTATION POSTAXIAL TO THE LOWER LIMB. Harvey Cushing (The Amer. Jour. of the Med. Sciences, March, 1904).

Two cases are reported which are of interest, on account of the rarity of perineal zoster and the light they threw on cutaneous segmentation. The first patient was operated on for right trigeminal neuralgia. The operation, removal of the ganglion, was uneventful. Four days later the patient complained of severe frontal headache, pain in the back and a few herpes on the left side of the face. The backache increased in severity, and on the seventh day an herpetiform eruption appeared on the right side of the perineum. The vesicles were most numerous about the anus, but extended forward to the posterior edge of the scrotum; externally, to the tuber ischii; and posteriorly to within 3 cm. of the tip of the coccyx. There was also an area of tactile and thermal hypesthesia, most marked in the right gluteal region, but extending down the right



leg as far as the calf. This area was painful if the skin was rolled between the fingers (painful hypesthesia). In the second case, also of trigeminal neuralgia, the right ganglion was removed in toto, without difficulty. This was followed by an eruption of herpes, confined to the left trigeminal and cervical nerves on both sides. There was no eruption in the distribution of the right trigeminal nerve, i. e., in the areas of post-operative anesthesia. In addition to this there was a symmetrical area, including the anal margin perineum and lower portion of the scrotum, that was hyperesthetic to painful stimuli, while slightly hyperesthetic to tactile and thermal stimuli. Some tenderness of skin and muscles on pressure existed over the buttocks and down the back of the legs. The author discusses the various methods utilized for the approximate determination of cutaneous areas presided over by individual segments of the cord, the anatomical, the physiological and the clinical. The clinical method accomplished by the study of traumatic paralyses, and by referred pain and zoster exemplified by the work of Head. Head's charts, however, are incomplete in the region which these cases illustrate, on account of the rarity of cases of zoster occurring in the lower sacral segments. In the first of these cases there was evidently involvement of the ganglia from the second to fourth sacral inclusive, although the lesion in the latter alone sufficed to call out an herpetiform rash over its own cutaneous territory. For clinical use the author suggests the cutaneous distribution of the lower sacral segments as follows: The fifth sacral, an area nearly circular in shape with a diameter of about 6 cm., with the coccyx in the center; the fourth sacral, the perineum and lower part of the scrotum; the third sacral, the upper part of the scrotum and penis, or corresponding organs in the female, and extending as far down the leg as the gluteal fold; it is only when we reach the second sacral that we find a leg distribution in its entirety.

C. D. CAMP (Philadelphia).

NEURASTHENIA AND ITS TREATMENT BY ACTINIC RAYS. Albert E. Sterne (Jour. Amer. Med. Assoc., Feb. 20, 1904).

In all stages of uric acid and rheumatoid maladies a distinct reaction to treatment by electric or sunlight is obtained on the principle of oxidation. Profuse perspiration occurs. Several severe cases associated with marked nervous symptoms were entirely relieved. In neurasthenia and other debilitated conditions the best results were obtained, and in pulmonary tuberculosis marked improvement took place. The use of nascent ozone was added to the treatment to provide oxygen to suboxygenated tissues. The writer claims marked chemical changes from actinic rays, which exist mainly in the ultra-violet zone of the spectrum. These actinic rays are derived from the high power electric lights as well as the sun. Their value lies in decomposing and reconstructive action on the body tissues, much enhanced by generation of ozone. Their ultimate effect is one of oxidation, and consequently they increase the metabolic changes, thereby augmenting the natural processes of regeneration within the system. There is also a germicidal action.

NOYES (New York).

TUBERCULOSIS OF THE SPINAL CORD. Charles L. Dana and J. Ramsay Hunt, (Medical News, April 9, 1904).

The authors discuss five types of tuberculosis of the spinal cord: (1) A few miliary tubercles are usually found on the spinal pia in general disseminated tuberculosis, but they have no clinical importance; (2) the same statement applied to involvement of the cord in ordinary cerebral tuberculous meningitis; (3) tuberculous tumors stand second in frequency among spinal tumors; (4) tuberculous myelitis, not recognized in literature, is suggested by the following case of a male patient, aged 40: suffered from progressive amyotrophic lateral sclerosis, which began with

symptoms of paralysis, spasm of the tongue extending down to the arms and hands. Six months later fever and complete paraplegia, with some involvement of the arms developed, with death in the course of a week. Autopsy revealed a spinal cord softened from the level of the first dorsal to the third cervical segment. No tubercles were found elsewhere. The microscopical examination of softened area by H. T. Brooks showed tubercle bacilli, no hemorrhagic process or inflammation, and presumably an acute necrotic process of tuberculous infiltration and softening. The case suggests that perforating necroses which accompany some severe cases of myelitis or cord degeneration are really tuberculous phenomena, and not primarily hemorrhagic. (5) Tuberculous pachymeningitis from caries of the vertebræ, with so-called compressive myelitis. This is less a true mechanical compression of the cord than an interference with the vascular and lymphatic circulation. As a result, there is sometimes an ischemia and sometimes an edema or both, with the result that the cord may undergo degeneration and necrotic softening. If the process continues the parts are destroyed, absorbed in part, and a sclerotic mass is left. The dura, however, usually protects the cord from tuberculous infection and suppuration, so that the cord process is rather a tuberculous pachymeningitis, with edema and more or less necrosis of the cord. The case illustrating this is one of caries of fifth cervical vertebra complicating pulmonary and glandular tuberculosis; external tuberculous pachymeningitis, quadruplegia, dissociated anesthesia. At autopsy the histological examination showed some necrosis edema; Gowers' tracts traced to their decussation in the anterior medullary velum. The onset was acute after exposure to cold. For three months lancinating pains were the only spinal symptom. The paralysis was acute. The dissociated anesthesia with complete paralysis of motion suggested a central lesion of the cord. The knee jerks were first diminished, later exaggerated. The spinal cord nerve fibers showed swelling of the myelin sheath and absent or swollen axis cylinders.

NOYES (New York).

THREE MEDICO-LEGAL CASES INVOLVING THE DIAGNOSIS OF CHRONIC DELUSIONAL INSANITY. Sanger Brown (The Amer. Jour. of the Med. Sciences, Jan., 1904).

The first case was one in which the patient, a German of good family history and good habits, accused his wife of illicit relations with a friend. There were certain facts which might have sustained his accusations, and a charge of insanity preferred against him by his wife was dismissed. His opinion regarding his wife's infidelity, however, remains unchanged. The second case, a man 54 years of age, a manufacturer, and of good personal and family history, accused his wife of masturbation, and tried in every way to take her unawares to prove it.

About two months later he accused her of criminal intimacy with a gentleman neither he nor she had ever met. This he told his son-in-law, and was greatly exasperated when his confidant ridiculed his assertions. Two days later he appeared in the midst of the assembled family with a revolver and opened fire. He did not seem actuated by anger against his wife. Obviously, here the delusive conceptions rested entirely on a subjective basis, hence a diagnosis of insanity was confidently pronounced. Pending the legal proceedings he had a large hemorrhoid removed, and on recovering from the anesthesia his delusions had vanished and he apologized to his wife. They have not since returned. The third case, a man 54 years of age, accused his wife of being unfaithful to him, kissing her brother-in-law, a venerable clergyman, in a suggestive manner. He also smelled her napkins to see if he could detect an odor of semen, etc. He had a remission in his delusions which lasted for two months, but they returned in full force and lasted until his trial. There was nothing

in his demeanor or general conversation suggestive of mental derangement. The essential diagnostic point in these cases is whether the delusions were conceived and elaborated on a basis of objective data or were wholly subjective,—the product of autogenous pathological cerebral activity. Only in the latter could they be properly designated as insane delusions. While Cases II and III were clearly chronic delusional insanity, they do not represent the usual type of that disorder, which more commonly commences in adolescence. They do, however, present the criterion of a morbidly autogenous manifestation of cerebral energy.

C. D. CAMP (Philadelphia).

A REVIEW OF SOME STATISTICS OF INSANITY. William Mabon (New York State Journal of Medicine, March, 1904).

The State of New York has \$22,522,672 invested in real estate and buildings for the insane. Personal property valuation is \$1,838,766. Maintenance cost (1901-1902) \$3,722,000 (not including amount appropriated for expenses of State Commission in Lunacy, nor Pathological Institute). Weekly per capita cost of caring for the insane, \$3.11. Total number of cases remaining in the hospitals Oct. 1, 1901, 22,654. Admitted during the year, 7,619. Discharged, 7,003. Causes of mental alienation, as represented by statistical tables of State Commission in Lunacy of New York, are divided into moral and physical. During the past year 15.31 per cent. were ascribed to moral causes; 53.16 per cent. were said to be due to physical causes; 31.51 per cent. cause was unascertained. Intemperance caused the insanity in over 14 per cent. of cases admitted, and contributing factor in not less than 30 per cent. of all cases received. Statistics regarding hereditary tendency: Of those admitted during year 162 women and 190 men inherited tendency to insanity from father's side, 241 women and 196 men inherited tendency from mother's side, 57 women and 56 men received inheritance from both maternal and paternal sides, 353 women and 171 men had collateral inheritance. A total of 1,426 cases (18.71 per cent.) present definite history of heredity. Twenty-two per cent. of cases admitted manifest mania; 33 per cent. melancholia; 6 per cent. general paresis; 31 per cent. dementia. Civil condition: Fifty per cent. of the males admitted were single, 36 per cent. married. Balance made up of widowed, divorced, etc. Of the women 38 per cent. were single, 43 per cent. were married. Remainder widowed, divorced, etc. Occupation: Laborers, domestics, farmers and mechanics furnish the largest percentage of insane. The professions the smallest (according to statistics in this country). Recovery rate, based on original commitments, is 24.6 per cent; 54.3 per cent. discharged as recovered or improved. Thirty-one per cent. of the manias recovered. In melancholia 24 per cent. recovered. Of the recovered cases, average treatment ten and one-half months. Death rate: Mental disease cause of death in 419 cases. Of these 297 deaths due to general paresis.

J. E. CLARK (New York).

PROGNOSIS OF GENERAL PARESIS. R. GAUPP. (Deut. med. Wochn., 1904, Nos. 4 and 5.)

After giving a short résumé of the principal advances made in the past century in the study of dementia paralytica, the author discusses the question as to whether the prognosis in this malady is always unfavorable. To arrive at a definite conclusion it is necessary to determine whether complete and permanent remissions ever occur. Mendel is quoted to the effect that 80 per cent. of his cases died before the end of the fourth year, 66 per cent. of the remaining during the second, and 50 per cent. of the total number succumbed during paretic seizures, while the statistics of Linstow and Van Husen indicated that from 70 per cent. to 75 per cent. of their patients afflicted with this malady did not live



three years. In 175 cases under observation at the Heidelberg clinic, 67 represented the chronic dementing form, and the average duration of life in this type was two and a half years, while 65 were examples of the expansive or classical type of the disease. Among the former, 15 per cent. had not died at the end of six years, and 7 per cent. of the second group lived more than five years. The writer is exceedingly skeptical about the existence of cases of true paresis which are reported to have lived for 15 or 20 years. After referring to the comparatively longer duration of the disease in the instances where syphilitic infection is marked as compared with those in which it is not, the writer discusses the affirmation of Mendel to the effect that the character of the disease is changing; an opinion that Gaupp affirms cannot in the light of present facts be substantiated. In addition to this quotation, the writer also quotes to the same effect, from the work of Fürstner, Angiolella and Van Husen. The remissions occurring in the hypochondriacal depressed forms are less frequent than those in the classical type. The gravity of the prognosis as regards an early termination of the disease is distinctly worse when the speech disturbances or specific paretic symptoms become marked. The juvenile and senile forms are said to be irregular and of longer duration than the other types of the disease. The relation of tabes to paresis is discussed at some length, and Charcot is quoted to the effect that tabetic symptoms may complicate those of paresis in one of three ways. The one most commonly reported is that the lesions in the posterior columns and cortex begin about the same time. The cases of tabo-paresis in which the cord lesion develops at a much earlier period than do those in the cortex are shown to present considerable clinical variations such as well preserved memory and attention with less general disturbances in intellect as compared with the other types of the disease. The contention made by Wernicke and others, that syphilis is always the cause of general paresis is disputed, as well as the reports of cures by Schule, Schäfer, Svetlin, Tuczek, Holban and others. The writer thinks that it is not improbable that many of the so-called recoveries are cases of manic depressive insanity, alcoholism, catatonia, or hysterical degeneracy and not true paresis. One of the most interesting points discussed in the paper is whether during the remissions there may be a complete disappearance of physical and mental symptoms. It is probable that the majority of observers have been too dogmatic in declaring that the physical symptoms, such as diminished light reflexes, absence of knee-jerk and marked speech disturbance, never completely disappear. Not only do these symptoms occasionally subside, but even well marked mental aberration may show remarkable remissions or even completely pass away. The point is emphasized that if such remissions do occur it does not follow that there has been a synchronous disappearance of the changes in the central nervous system. The case reported by Alzheimer is referred to, in which there was a complete remission of all the symptoms, but when the patient died of an intercurrent trouble distinctive lesions of paresis were found to be present in the central nervous system. A disappearance of all the somatic symptoms without a marked improvement in the mental never occurs, and in this feature the malady differs essentially from cases of alcoholic dementia. Not more than 10 per cent. of all the cases have true remissions and only 1 per cent. an intermission. The length of these reported improvements varies between a few weeks and several years. The remissions are much more apt to occur in the cases where the onset is acute, provided the patient lives through this period, than in the cases where the disease in the initial period presents a more chronic and insidious form. The most frequent remissions are found in the acute, expansive, circulatory and catatonic forms; less commonly in the

depressed and chronic dementing type. The fact that certain cases show an improvement in the symptoms after an acute febrile process due to infection, gangrene of the lung, small-pox, scarlet fever, etc., is referred to, but attention is also called to the important fact that a great number of paretics suffer from infections, such as cystitis, pneumonia, without showing any improvement in their condition. In conclusion, the author affirms that the so-called cases of paresis which are apparently stationary for years are not examples of this disease, but are to be grouped as instances of diffuse cerebral syphilis, alcoholic dementia, traumatic dementia, arterio-sclerotic disease, dementia præcox. Dementia paralytica is a progressive disease. The large group of so-called atypical or pseudo-paretics needs to be more carefully investigated.

JELLIFFE.

FIVE CASES OF TUMOR OF THE BRAIN, WITH OPERATION. Wm. G. Spiller (Amer. Jour. of the Med. Sciences, Feb., 1904).

The first case, already reported in the Amer. Jour. of the Med. Sciences, July, 1903, was a case of multiple sarcomatosis. A tumor was diagnosed in the cerebello-pontile angle and was found there, but there were numerous others that did not cause any symptoms because they were so soft they caused no pressure and little or no destruction of tissue. *Case II.*—The symptoms were paresis of the right side of the face and of the right upper and lower limbs, some motor aphasia, diminution of each patellar reflex, frontal and occipital headache, and convulsive movements of the right upper limb, but not of the lower. The patient did not have nausea, vomiting, vertigo, Babinski's sign, disturbance of sensation, loss of stereognostic perception, nor optic neuritis. An infiltrating spindle-cell sarcoma was found in the second left frontal convolution, extending in to the middle of the precentral and postcentral convolutions and the upper part of Broca's area. In Case II. the convulsions in the right side of the face and in the right upper limb, the weakness of the right side of the face, and of the right upper and lower limbs, the partial motor aphasia, were indicative of a focal lesion, probably a tumor, in the left side of the brain, and chiefly in or near the center for the upper limb. As the convulsions probably had not implicated the right lower limb, it seemed more likely that the tumor had grown inward and involved the fibers coming from the lower limb in their course from this center to the internal capsule.

The absence of convulsions in the right lower limb seemed to indicate that the cortical center for this limb was not irritated or else irritated after the fibers from this area had been cut. Especially noteworthy in this case was the absence of optic neuritis, nausea, vomiting, and dizziness. Almost complete recovery followed the operation for a period of about seven weeks. Recurrence and death.—The necropsy showed a tumor that could at no point be outlined from the surrounding brain tissue. *Case III.*—Syphilis. The symptoms were severe headache on the right side during five years, convulsive movements of the left side of the face and of the left upper limb, but not of the left lower limb, a little weakness of the left side of the face, and nowhere else, gray degeneration of the optic nerves, paralysis of one third nerve and paresis of one fourth nerve, and loss of the iris response to light and to accommodation. The patient did not have nausea, vomiting, dizziness, optic neuritis, alteration of tendon reflexes, Babinski's sign, nor loss of stereognostic perception. Later, some weakness of the left upper limb was noticed, and sensation became impaired in the left upper limb and in the left side of the face, and stereognostic perception and sense of position became impaired in the left hand. Still later, the left upper and lower limbs became completely paralyzed, and motion in the left side of the face became imperfect. A subcortical mixed

sarcoma (round and small spindle cells) was found in the right cerebral hemisphere. Its central portion was beneath the middle part of the motor area. Its outer border was 1.5 cm. below the surface of the brain.

In this case syphilis was acknowledged, and the headache existing many years, the paralysis of the right internal rectus extending over a period of eight years, and the loss of the iritic response to light and in accommodation made the case appear as one of syphilitic meningitis. Antisyphilitic treatment was thoroughly employed, without distinct benefit, but this did not prove that the case was not one of syphilitic meningitis. Spiller has seen administration of mercury and iodides have little effect on advanced cerebral syphilis, where many symptoms suggested the existence of brain tumor. These cases should be regarded, at least clinically, as cases of brain tumor, and so treated—*i.e.*, by operation, where operation is permissible. The convulsions involving the left side of the face and the left upper limb were indicative of a lesion in the corresponding cortical centers for these parts. At first there was weakness only in the lower part of the left side of the face, but later the left hand grasp became weak. The stereognostic perception became impaired in the left hand, the sense of position became impaired in the left thumb, and tactile and pain sensations became impaired in the left upper limb. Sensations of touch, pain, and temperature also became a little impaired in the left side of the face. The lesion seemed to be in the facial and upper limb centers and the adjoining part of the parietal lobe, and it was believed to be cortical or very near the cortex, because of the typical Jacksonian epilepsy. The area mentioned was exposed, but a distinct tumor could not be found. In this case optic neuritis did not exist, this sign was therefore absent in two out of the five cases. Choked disk is one of the most common signs of brain tumor, but is not always present. *Case IV.*—The symptoms were frontal and occipital headache, convulsive movements of the left side of the body, impaired mentality, some weakness of upper and lower limbs, greater on the left side than on the right, spasticity of the lower limbs, exaggeration of tendon reflexes, Babinski's sign on the right side, but not on the left; optic neuritis greater in the left eye, loss of stereognosis and of the sense of position in the left hand, impairment of tactile sensation, but not of pain sensation, in the left upper limb, and awkwardness of the movements of the left fingers. At operation, numerous tuberculous plaques were found, almost confined to the right parietal lobe, except where they extended into the upper part of the postcentral and precentral convolutions. In this case paralysis of the left side of the thorax was said to have occurred during a convulsion. The necropsy showed that the left lung was entirely atelectatic. Especially interesting in this case, and of great diagnostic value, were the loss of stereognostic perception and of the sense of position in the left hand, the awkward movement of the left fingers, and the impairment of sensation for touch, but not for pain, in the left upper limb. These signs were indicative of a lesion of the parietal lobe. Absence of hemianopsia made an implication of the sensory fibers in the internal capsule and, therefore, a lesion near the visual fibers improbable, and the typical Jacksonian epilepsy pointed to a cortical lesion. *Case V.*—The symptoms were occipital, frontal, or general headache, vomiting, general weakness, paresis of the lower part of the right side of the face, dizziness, staggering toward the right, diminished patellar reflexes, right hemiasynergy, frequent yawnings, double optic neuritis, paresis of right external rectus, central deafness on the right side, some nystagmus on lateral movement, and impaired mentality. A cyst with small sarcomatous masses in its walls was found in the right cerebellar lobe at its union with the pons.

In this case the movement of the lower part of the right side of the face was not so good as that of the left side. The patient always staggered



toward the right in walking, and hemiasynergy of the right lower limb as described by Babinski was found on two or three occasions—*i.e.*, when the right leg was fully flexed on the thigh, and the thigh fully flexed on the abdomen, and the patient then attempted to extend the limb and place it on the bed, the movements of the lower limb were not synergic; the leg was not extended simultaneously with the thigh.

C. D. CAMP (Philadelphia).

THE CONSIDERATION OF THE EPILEPTIC BY THE COURTS. John B. Chapin (Albany Medical Annals, Feb., 1904).

In conclusion the author submitted the following:

1. That it is the result of observation that epileptics do show some mental failure, as loss of memory, irritability, a tendency to become suspicious, ugly, revengeful, easily aroused to passionate outbreaks, emotional, and often the moral and religious side are intensified, as the disease and age advance.

2. That these changes become more marked during the interval between convulsions as the intervals between seizures diminish.

3. That in every medico-legal inquiry in any alleged or suspected case of epilepsy it is essential to establish the existence of a paroxysm, or paroxysms, beyond a reasonable doubt by actual observation, and not by hypothesis alone.

4. That in a trial of a criminal where epilepsy is interposed as a defense, if mental or moral degeneration has actually taken place, and when the occurrence of epileptic convulsions has been shown to exist, the defendant is then entitled to acquittal and disposed of as provided in such cases.

5. If a person has committed a criminal act and has had epileptiform seizures in infancy; or at some period has had an epileptic convulsion and the criminal act was not committed near to or succeeding a seizure and no mental failure can be shown, then the most the defendant can expect is conviction with a recommendation to mercy, if the charge is proven.

6. That the convulsion is not the actual disease but is an outward manifestation of a complex psychical and physical state due to some disease, vicious habits, traumatism, or the result of degeneration following an unfortunate inheritance, and when it has been once established and recurs even at prolonged intervals, it is the rule of experience that mental and moral degeneracy occurs and progresses gradually.

J. E. CLARK (New York).

THE  
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**Original Articles**

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A CASE OF UNCOMPLICATED HYSTERIA IN THE MALE, LAST-  
ING THIRTY YEARS, WITH POST-MORTEM  
EXAMINATION.<sup>1</sup>

BY S. WEIR MITCHELL, M.D., LL.D., AND WILLIAM G. SPILLER, M.D.,  
OF PHILADELPHIA.

REMARKS BY DR. MITCHELL.

In the *American Journal of Medical Sciences*, October 1876, I described a number of forms of spasms which I called functional after the term employed by Duchenne of Boulogne.

In these cases normal movements caused or intensified certain spastic phenomena. Among these examples I briefly described the case of Robert Connolly, which is, for many reasons, so remarkable that I propose to reprint it at length. It has passed during thirty years under the eyes or care of this present writer, of Drs. Sinkler, Lewis, Spiller, Dercum and John K. Mitchell. All of these neurologists agree as to its being a typical example of hysteria in the male. Whether through hysterical interests and the vanity of being thought unusual, or because I had been able to serve him in various ways, he volunteered to leave me his body. Within a few hours after his death I made free to use this privilege. There had been meanwhile no intercurrent malady, nothing to disturb such pathologic states as hysteria might offer. The death was sudden. The conditions seemed to be ideally per-

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<sup>1</sup>Read at the meeting of the Association of American Physicians, 1904.

fect. This unusual chance was fully utilized. I am aware of no other case of uncomplicated hysteria in which the search for causative lesions seemed to offer such an opportunity. Its unique importance excuses the length of my report.

In the winter of 1876 Robert Connolly applied for treatment at the clinic of the Infirmary for Nervous Disease.

Mr. C., white, watch-case maker, 33, married, no children, of the utmost sobriety, and until 1876 a moderate smoker, now does not smoke. His grandfather, mother and two maternal aunts had hemiplegia in middle life. His father was healthy and died at 83. Two of five sisters of Mr. C. were insane, a third had hip disease, an uncle had epilepsy, a cousin, paralytic dementia.

As a child, and indeed through life, Mr. C. was nervous, timid, gentle, reserved, and although slow at his lessons was not lacking in intelligence. At 17 he had typhoid fever, without complication or sequels. At 23 he fell twenty feet without serious results. At 25 he had sunstroke, and was insensible for two days, but had no consequences except a life-long over-sensitiveness to sun-heat. At 29 he began to have some difficulty in his delicate hand work. This was at one time a weakness of either hand, and at another a momentary spastic condition. I may here add that he was ambidextrous. The hand trouble came and went.

On Decoration Day, 1874, he grew excited and emotional after witnessing the ceremonies, and on the way home became of a sudden for a few minutes so weak in the legs as to have to sit down on a door step. From time to time this recurred, but with less severity. He became weak, stood still, felt a return of power and walked on. With these attacks came also pain in the lumbar region and the first of the cervical pain felt at times ever since.

In January, 1875, began inconstant, rather fine tremor of the left hand, only visible when the arm was flexed.

The patient when first seen by me was a rather thin, pallid man, with a nervous, uneasy, anxious look. He was a person of unusual refinement, very gentle and timid, but clearly intelligent and well pleased to be considered as an uncommon case, and over-willing for a time to exhibit the symptomatic spasms. Then abruptly, his face would change, he **would** lose his constant smile, and be annoyed by our curiosity.

He had at this time no organic trouble. His digestion and



bowels were in good order, his senses perfect, nor had he then or later any of the ocular phenomena of hysteria. His sleep was good. The tremor of the left arm by degrees attained greater amplitude, and gradually, during the next three months, he developed the symptoms noted by Dr. Sinkler, at that time my clinical assistant.

In sleep there was no movement; when he awakened he was conscious of the left hand being rigidly closed. In a few moments it began to twitch, the fingers moving as do those of a violin player. The slightest movement of any other limb, or the act of speaking or eating, caused the left arm to execute a constant motion of striking the bed or his side, the limb being the while extended. When he arose and walked this action became more violent, and so much resembled the steady, rapid movement of a pendulum that I spoke of it once to my assistants as a case of what might be called descriptively pendulum spasms. In fact, its rhythmic regularity was astonishing. Dr. Sinkler timed it, on one occasion, as 157; and on several others I found it always 160. It was as accurate as the heart in its motion, but certain things increased either the power or the number of the motions. Thus, if he stood up, after having been seated, the number did not alter, but the force of the blow on the thigh increased remarkably.

If while standing, he elevated and extended the right hand and arm to the shoulder level, instantly the rhythm mounted to 200, and when the right arm ceased to act the number fell again to 160.

When there was no pendulum spasm he could perform with the left arm any voluntary act not involving the hand, which itself never ceased to twitch; but while the swinging spasms lasted he could execute with it no volitional act, and effort to control the limb enormously increased the spasms. Excitement and emotion and all forms of electricity added to the force of the motions, but voluntary movements of other limbs increased the number more than the force. Attempts passively to fully extend his partially flexed fingers, caused increased pain in the occiput, just as the effort to overcome rigid gastrocnemii in some cases gives rise to pain in the dorsal spine. He had power to stop the spasms by certain maneuvers. If he seized the left hand by the right, and flexing the left arm, held it, the left hand

for a moment seemed to struggle with increasing violence; he tottered, his face became convulsed; there was horrible pain in the back of the head. Then as he gently released the left arm, save for a slight tremor or twitching of the unquiet fingers, it remained at rest, and might not move in violent spasm for an hour or more, and was sometimes nearly still for twelve hours. He avoided the use of one hand to stop the other, because of the great pain it caused in the head. When he stopped the hand by catching it under his leg, he had little head pain, but it was so unpleasant for him to stop it that he rarely did so.

When standing, if he wished to check the pendulum spasm, he threw the left leg back so as to trip the toe; the arm then fell in to the right as it moved and he brought the leg forward, catching the arm against the thigh. Then there was a general convulsive movement of the entire body and the limb came to rest.

When the arm was hanging at his side it began to move if he walked a few steps, or if he lifted the right arm, in which at times, especially after sudden arrest of the spasm, I noticed some large tremor. In all of this strange set of symptoms there was no loss of consciousness, no anesthesia, no speech or ocular trouble, no aural defect. When he walked long or fast the legs had some disposition to become rigid, but this was an inconstant feature.

The pendulum spasms continued unchanged up to October, 1876, when quite suddenly they ceased, and he began to have rotatory movements. The extended left hand and arm described a circle at the rate of 140 a minute or more. Later, the rate increased, but as they are fully described in Prof. Dercum's notes I leave to his account the details. Henceforward Connolly was subject to one or the other of these forms of spasms. Since August, 1895, he has had at times long periods of chronic contraction of the fingers of the right hand, relaxed when the member was held up above the head by an assistant, but this position gave rise to a wild convulsive motion in both arms. When an observer seized and firmly held the swinging arm, a general convulsion followed, involving in succession the other arm, face, neck and legs.

From the autumn of 1876 and thereafter, all movements ceased when he lay down, but recurred on his standing up, and were exaggerated by walking. If, however, when lying down he

lifted his head, the left arm began to beat on the bed and did not cease until he stood up and then lay down again. Tapping the muscles smartly while he was supine caused no movements until the quadriceps tendon on the right was struck below the patella. The usual knee jerk followed, and then the left hand first and next the right flexed, and remained in spasms a few moments. A tap above the knee occasioned no such spasm.

Volitional effort at control made the spasm worse. At this period all the muscle reflexes were excessive, but there was no clonus. The skin muscle reflexes were present throughout and normal. All electrical reactions were normal.

There are some later notes in which he is spoken of as having at times pendulum movement and at other times rotatory motions. The tremor varies, comes and goes, and is chiefly in the right arm.

In 1896 and later he had sometimes for a month retention of the urine, and need to have the water drawn by catheter, but at no period was there ever cystitis or prostatic enlargement. There has been no retention of late, but at times he has had scanty urine, the quantity falling to six or eight ounces in the twenty-four hours.

In 1888 I turned over my patient to Prof. Dercum for study, and photographic records were made with the aid of Mr. Muybridge. As these photos do not help to understand the case any better than do Dercum's clear descriptions, I have not reproduced them in this paper but refer the curious to Muybridge's work on *Animal Locomotion* published in 1888.

After quoting my account of the case as seen in 1876, Dr. Dercum writes as follows:

"The phenomena presented have undergone some changes. The simple pendulum movement is now replaced by a more complex rotary movement, which is present only under certain conditions. Thus, when Mr. C. is sitting or standing still, the arm is carried in a semi-flexed position, while the hand and fingers are markedly contracted and in constant vibration. Were it not for this last factor, namely, the vibration, the position would bear some resemblance to that assumed by patients suffering from secondary contracture.

"If, however, Mr. C. attempts to rise or walk, the forearm



becomes slightly less flexed, whilst the vibration increases both in amplitude and rapidity. If the walk be persisted in, and be it ever so slow and gentle, the forearm finally becomes completely extended, and now the entire arm describes a rotary motion, such such as is shown in the upper series of Plate 557.<sup>2</sup> It will be observed that this movement is one in which the hand, while it is suspended from the shoulder like a pendulum, describes a circle by first sweeping forward, then outward, then backward, and finally forward again to its original position. If now, while the arm is performing this peculiar movement, Mr. C. attempts to raise the arm up to the shoulder even the rotary movement increases wonderfully in extent. The arm describes a circle. The arm extended and the hand and fingers contracted, sweeps over a circle in front of the body. The hand sweeps upward and outward, and then inward again to its original position.

"At the same time that this spasm of the left arm is taking place the right arm, too, becomes convulsed. It is raised abruptly, and the forearm directed upward, and a series of to-and-fro movements begin, which examination shows are synchronous with the rotary movement of the opposite limb. As the rotating limb rises, the right arm rises; as the former descends, the latter descends. As the left arm sweeps inward and upward, the right arm steadily ascends; as the left arm goes outward and downward, the right arm steadily descends. There is certainly here a curious association of movement. If instead of raising the arm to the shoulder, Mr. C. simply sharply flexes the left forearm at the time it is rotating, a series of to-and-fro movements replace the rotary movements. That is, the left arm is thrown violently backward and forward. At the same time the right arm becomes similarly affected, and it, too, is thrown violently backward and forward. As in the previous experiment, the movements are found to be synchronous. It will be observed that at no time does the right hand become contracted and the fingers clawed."

Some idea may be gained of the rapidity of these movements when we reflect that the complete cycle of the movement occupied less than the half of a second (represented in Fig. 19),<sup>2</sup> while in Fig. 20<sup>2</sup> the rapidity had so much increased that the cycle occupied only the third of a second.

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<sup>2</sup>Animal Locomotion.

If Mr. C. is sitting quietly in a chair, with the arm in a semi-flexed position, already described, then lies down with his back and head flat on the ground, all vibration in the hand ceases. It becomes perfectly quiet, and he can execute with it most exact and delicate voluntary movements. If, however, he now attempts to raise the head, violent tremor at once appears in the hand. This tremor is so violent that the feet and head are affected. It is remarkable that the raising of the head is the only movement that provokes the tremor. Raising the right hand or either foot does not have any effect. Similarly, if he lies upon the ground, and the motion be completely arrested, it is again violently excited by striking the patellar tendon or by attempting to elicit ankle clonus. It is also a remarkable fact that the tremor so excited, or excited by raising the head, cannot be quieted unless Mr. C. arises completely from the ground and lies down anew.

I have seen Mr. C. from time to time since 1898. In these later years there was no change of moment, but he was certainly stronger, and when in the country walked five or six miles daily. The pendulum movement was not often observed, and the weakness of the legs never returned. The rotation action persisted, as described, until his death. In July, 1903, he presented symptoms of cardiac weakness, and was under Dr. Sinkler's care.

Increasing palpitation and shortness of breath occurred in October. November 11, after breakfast, he went to the water-closet and there suddenly died.

The treatment of this case is of interest. He saw many doctors and haunted clinics, and was variously treated with no good result. In December, 1897, I asked Dr. J. M. Taylor to hypnotize Mr. C. and use suggestion; a previous attempt by another assistant having failed. As usual, Mr. C. took a freshly hopeful interest in the new treatment, and kept a penciled, irregular record of the sittings and their results. For a long while it was impossible to induce the hypnotic state, but as Dr. Taylor writes me, after thirty sittings, of a half hour each, partial effects were attained. During these many sittings Mr. C. never passed into deep sleep, nor did he lose any sensory perceptions. Mr. C's notes state that after the seventh sitting he wrote a letter with his left hand and without tremor. On the twenty-third sitting the pendulum movements, previously very active, ceased for a few

hours. This effect was obtained thereafter only at intervals during daily hypnotization. In January the sittings were more successful, and on the fifteenth sitting in that month all spasms ceased. He was able to take a place as assistant in the Jefferson College library, and for three months continued well, efficient and much liked for gentleness and amiability. Then something took place which excited him disagreeably, and at the same time he had influenza. The spasms returned in both forms.

While he was in bed, Dr. Taylor visited him, and was able to so influence him by an order that he could rise and walk about the room without spasmodic actions. It is interesting that after this he declined to be aided again by hypnotic means, declaring to Dr. Taylor that the hand of the Lord was upon him, and that he felt he should bear his trouble with a serene mind to the end of his days. Whether this was the result of a temporary mood or was one of the self-delusive states common in hysteria, I am not sure. Once, however, he allowed me to hypnotize him, with good results, which were not lasting, but after this would have no more of it nor give a reason except that it was disagreeable. Probably he missed the attention his case excited, for now again he began to appear at the clinics, but was unwilling to take any form of treatment.

It is needless to say that every other means of treatment had been sedulously employed, and that excepting hypnotic suggestion, all had failed.

On the day of death the post-mortem section was made by Drs. Eshner and Allen, with the assistance of Prof. Spiller, to whom was confided the study of the nerve organs.

REMARKS BY DRs. MITCHELL AND SPILLER.

Cervical region; sections from the lower part of the cervical enlargement of the cord stained by the thionin method, are normal. The chromophilic elements of the nerve cells of the anterior horns stain well. The nerve cells are pigmented, but not more so than is usual in a person advanced in years. The nerve cells of the anterior horns are numerous, and equally so in the two sides of the spinal cord. The white matter of the anterior, lateral and posterior columns is not degenerated. The anterior and posterior roots are normal. Anterior roots from the right side of the



cervical region were cut separately from the cord, so as to obtain a large number for examination. These roots are perfectly normal. Sections from the mid-thoracic region are normal.

Lumbar region; the nerve cells of the anterior horns by the thionin method are like those of the cervical region, and are normal. The white matter of the anterior, lateral and posterior columns, and the anterior and posterior nerve roots are normal.

Brain cortex; sections were taken from the middle of the precentral convolutions of the left and right cerebral hemispheres. The nerve cells are numerous and well stained by the thionin method, and appear normal. No distinction can be made between the sections from the right and left hemispheres. Sections stained by the Weigert hematoxylin and acid fuchsine with hemalum are normal. The tangential fibers are numerous in all the sections from the cerebral cortex.

No signs of meningitis or of cellular infiltration are found anywhere in the brain or cord. The right precentral convolution is remarkably well developed, and more so than the left precentral. It would be well, however, not to attribute too much importance to this. All the convolutions of the brain are well formed.

The microscopical examination of the brain and spinal cord reveals nothing that could be regarded as distinctly pathological, and affords no explanation for the involuntary movements.

Remarkable, indeed, were the involuntary movements in the left upper limb in this case, persisting through so long a period, and it may at first thought seem strange to those who have not paid much attention to the pathology of the nervous system, that no lesions have been found to explain them, and yet we could hardly expect spasms that could be held in check for sometime by hypnotism to be dependent on organic changes in the nervous system. While we cannot cite a similar example with an equally long duration, we may refer to other forms of involuntary movements in which the findings have been negative. Numerous lesions have been found in cases of the so-called idiopathic epilepsy, such as sclerosis of the cornu Ammonis, the cortical sclerosis of Chaslin, the alteration of certain layers of nerve cells, etc. But all these lesions are of more or less doubtful value, and it is questionable whether they in any degree explain the convulsive movements. The epileptic spasms associated with

unconsciousness and attended by alteration of the blood pressure, and possibly toxic conditions, are usually so severe that at least some, if not all, of the lesions found in epilepsy may be the results of a long succession of these serious attacks.

The pathology of chorea has not yet been determined if we except the form of Huntington, in which mental symptoms are prominent and the movements are only a part of the symptom-complex. We do not overlook the fact that certain lesions have been described as occurring in Sydenham's chorea, viz.: slight thickening of blood vessels, small hemorrhages, some round cell infiltration, "chorea-bodies," even micro-organisms, etc. The pathology of chorea, so far as it is understood, has been presented recently by Hudovernig, but we trust that we may be pardoned scepticism as regards the importance of these findings in chorea.

We should expect to be more successful in a search for lesions in convulsive tic, as this is in most cases a more serious affection than Sydenham's chorea, and yet, so far as we know, the pathology of convulsive tic has not been determined.

No organic changes in the nervous system have been discovered to throw any light on the nature of hysteria, even though involuntary jerkings or contractions have persisted a long time.

We might expect to find organic changes in the remarkable affection known as paramyoclonus multiplex. J. Meinertz<sup>3</sup> has described recently a case of myokymia, by which is meant contraction of muscle bundles, fibrillary contractions, without organic disease.

It differs from the paramyoclonus of Friedreich in that in the latter each affected muscle contracts as a whole. Meinertz suggests that in myokymia the nerve cells of the anterior horns of the spinal cord may be in a condition of increased irritability, and mentions that others have entertained the same view, and that Friedreich was inclined to attribute the involuntary movements in the disease described by him to this cause. Meinertz believes that this increased irritability of the nerve cells of the anterior horns may exist without causing any alteration that can be detected. Such a theory naturally cannot be refuted, nor can it be proved, and it seems almost improbable. An abnormal condition of nerve cells sufficiently intense to cause such pronounced movements of

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<sup>3</sup> J. Meinertz, *Neurologisches Centralblatt*, Feb. 1, 1904, p. 101.

the muscles, would, in course of time, be likely to lead to organic changes detectable by the microscope.

Recently J. R. Hunt<sup>4</sup> has made a careful examination of the material from a case of Friedreich's paramyoclonus multiplex, and he mentions that pathological anatomy has thrown no light on the nature of this disease. No evidences of pathological changes were discovered by Hunt in the brain and its meninges or in the spinal cord. The nerve cells of the anterior horns and of the cerebral cortex were normal. The peripheral nerves, the intramuscular nerve fibers and the muscle spindles also were normal. The muscle fibers were increased in size, and sarcolemma nuclei were found between the sarcous elements. It is well to be cautious in attributing much importance to these changes in the muscles. Hunt refers to Friedreich's case in which the histological examination of the spinal cord and biceps muscle was made by Schultze. The findings were negative. This and Hunt's case seem to be the only examples on record of this type of paramyoclonus multiplex with systematic histological examination.

In Connolly's case the heart was the only organ which was plainly diseased, and it presented some unusual conditions, of which Prof. Allen Smith gives the following description:

"The heart when brought to me was in formaldehyde, already partially dissected. It weighed 400 g.; left ventricle, the special seat of enlargement, mainly from distension. Wall of left ventricle at base (the thickest part) 2.5 cm.; of right at corresponding position, 8 mm. Near the apex of the left ventricle on the superolateral convexity was an area a little larger than a dime, which externally showed white, and somewhat depressed as from a scar. The wall in this area is not above 5 mm. in thickness, dense and fibroid to palpation. Corresponding to this area and for a considerable zone about it the endocardium, involving that of the pectinate and papillary muscles, is white, opaque, and at thickest part as much as 2 mm. thick. In dissection of the coronary artery to this part its wall was found generally thickened and fibrosed, and is lost as a tiny thread-like branch in the cicatrix (not cut lest connection be lost, but apparently solid). The wall of the ventricle in the entire apical portion is decidedly diminished, on an average about 8 mm., while with a rather abrupt border toward

<sup>4</sup>Hunt, JOURNAL OF NERVOUS AND MENTAL DISEASE, July, 1903, p. 408.



the base the above excessive thickness is reached. Muscle toward the base is apparently normal as far as gross appearances are concerned, in the thinned area it is paler and firmer than normal. The sheets of the aortic and mitral valves are decidedly sclerosed and opaque, those of the aortic opening showing advance of sclerosis from base toward free margin. Valves of right heart and endocardium of cavities normal. Cardiac openings not estimated because of their previous section. The aorta in coronary sinuses about arterial openings and along attachments of aortic cusps, shows slight patches of advanced atheroma.

"Microscopically sections through the wall, close to the dense cicatrix, show the pericardium and endocardium much thickened, and the latter in places very dense and hyaline. Slight fatty infiltration in the pericardium. The myocardium in places is almost completely cicatricial; but much of the several sections shows the presence of muscle bundles surrounded by a large amount of connective tissue. Some of these bundles are apparently normal; many atrophic, with the primitive fibrillæ lost and the appearance that the primitive bundle extends directly into the connective tissue of the scar. The idea is given of the existence and marked thickening of a sarcolemma sheath about the primitive bundles, and of septa within the bundles separating the ultimate fibrils. The loss of muscle substance leaving these elements behind, apparently, occasions the appearance of metaplasia just mentioned, in a passive way, however. Such apparent remnants stain as connective tissue with Mallory's special connective tissue stain (not absolute, as formaline was used here as a fixative), and so too transverse sections of what seem to be atrophic primitive bundles stain in sheath and in the interior in the same way. In the cicatricial tissue may be also seen remaining nuclei of former muscle bundles, sometimes in some state of disappearance as in solution, again intact, and then often with a somewhat spindle-shaped mass of protoplasm about them, as if forming a large young connective tissue cell, staining with the above special stain as connective tissue.

"No direct continuation of these cells into fibrillæ of connective tissue could be seen; no evidence of the multiplication of the nuclei of these bodies; numerous retrogressive forms, and often isolated granules of polar pigment indicating the previous position of the

nuclei. For these reasons it is concluded that no real active part in regeneration into connective tissue of the scar is borne by these cell-like remnants. In other portions of the heart muscle the usual moderate interstitial fibrosis is seen. The muscle substance is in its degeneration near the scar, the seat of a liquefying process producing large vacuoles in its substance; and here and there finer vacuolation suggests the existence of fatty degeneration. The vessels are generally more or less fibrosed."

We feel that this case requires little comment. No one would hesitate to label it hysteria. The psychical picture is complete. The mental peculiarities, the motor phenomena, the vesical symptoms, the one form of therapeutic success are all characteristic.

Both Dercum's notes and our own comments dwell upon one striking feature, the fact that certain positions, passively caused or voluntarily produced, gave rise to definite extension of the spasms to the quieter arm and at times to the entire body.

This phenomenon is of great interest. Dr. Dercum speaks of it as like an overflow of nerve force, and it recalls to mind the explanation of the effects of reinforcement of keen jerks given by Drs. M. J. Lewis and S. Weir Mitchell.

We are tempted to ask if restraint of the affected arm during a fit of Jacksonian epilepsy will be found to cause extension elsewhere of the limited convulsive motions. It seems probable that such restraint during a Jacksonian attack would have a tendency to cause extension of the convulsive movements to other parts of the body, because in epilepsy the muscular convulsion appears to act as a release to excessive energy stored up in the cortex. Restraint of the spasms in epilepsy sometimes is followed by sensations that are more unpleasant than are the spasms, thus Gowers remarks: "The arrest of the fit, by a ligature or a blister, sometimes causes so much giddiness and distress that some patients have considered the remedy worse than the disease."

In this present case the increase and spread of spasms by restraint of the primary spasm tempts to speculative hypothesis, but the physiological mechanism is under no theory clear. If one could damn up explosive nerve energy in its originative center until it overflows its normal nerve channels and sweeps over many neural centers and channels in disorderly discharge, this is conceivable. But when these outbursts are evoked by lifting a limb,

or restraining an habitual spasm at a distance from the center of effluent energy, the reason of the wide extension is not easy to explain. For in the case of a spasm forcibly checked we are only limiting the degree of disorderly muscular discharges, and not the primary outflow of nerve force.

This very interesting fact of restraint of spastic motion causing remote, or even general spasms, is not single in the experience of one of us.

Dr. Mitchell saw, in the Civil War, a soldier who had a see-saw spasm of the left foot, caused by a nerve wound of the sciatic. The flexors and extensors acted by turns, so as to keep the foot in constant motion. When it was held firmly, the man was seized at once with a general left-lateral convulsion, in which the face moved but slightly, without ocular spasm or loss of consciousness, but with occipital pain. As soon as the foot was released the other motions ceased. Sensibility was impaired from the peripheral lesion.

In the case of Col. P., described on page 364 of Dr. Mitchell's book on nerve injuries, there was a continual irregular threshing motion of the arm stump, which ceased for a time, when the stump was exercised in voluntary motion, but which extended over a large region of the same side (right) with a sense of discomfort in the head if an attempt were made by another to restrain the spastic movements in the stump.

The purpose of this paper is to give the result of minute pathological study of an uncomplicated and lasting case of undoubted hysteria.

The conclusion justifies us in stating that with our present methods the most typical hysteria lasting for years, presents no sign of representative organic lesion. This is, however, the wisdom of to-day; that of to-morrow may be based on other and more refined methods and be very different.

The case has other than this merely negative value. It raises the question of why restraint causes generalized spasm. It suggests consideration of the share which even hysterical mental attributes may have in this sequence, and it illustrates how large and how lasting may be convulsive symptoms without their leaving a record on the long disordered centers whence came this overflow of energy without sign of fatigue.



## REDUPLICATIVE PARAMNESIA.

BY ISADOR H. CORIAT, M.D.

OF WORCESTER,

WORCESTER INSANE HOSPITAL.

*Continued from September number.*

November 10, 1903—(Second note taken at the staff meeting).  
“Why did you come here?” “I can’t tell. I was thinking about it over at the window. I was wondering whether I was brought here for drink.” “Do you remember the name of this place?” “Couldn’t tell you. I don’t know unless it is an insane hospital, but I couldn’t tell where it is. There are two insane hospitals.” “What caused your trouble?” “Probably liquor.” “Were you ever in an institution before?” “No.” “What about the other J. L.?” “I was speaking about him before. He was in the Worcester Insane Hospital, down at the lake.” “How long ago was that?” “About two years.” “What was the trouble with him?” “Too much rum.” “What became of him?” “He died.” “How old was he?” “Forty.” “How old are you?” “About thirty-eight.” “How heavy was he?” “185.” “How much do you weigh?” “Couldn’t say.” “How did you lose your finger?” “Got it caught in a gear in Boston.” “Did the other J. L. ever meet with any accident?” “No.” “With whom did you talk when you came to visit him?” “Couldn’t say.” “What doctor did you see?” “There was a tall man named Dr. N., I think.” “Did you see any other doctor?” “Yes, a friend of Dr. N.” After several names had been mentioned and replied to by “no,” the patient was then asked: “Was it Dr. C?” “I guess it was.” “What is my name?” (Dr. C.). “Couldn’t say; but I have seen him several times before.” “How many patients are there in the ward with you?” “I think twelve beds” (ten). “Name the attendants?” “Don’t remember.” “Are there two Worcester Insane Hospitals?” “Yes.” “Where is this place?” “Don’t know. I thought I was in Taunton, because I saw on a piece of paper T. I.” (The patient refers to T. I, the initials of the ward in which he has been since coming to the hospital; these are printed on all the bed clothing and written on the charts, and he mistakes the figure 1 for the letter I, hence the further affect on the elaboration of the paramnesia, as noted in the following examinations and experiments): “When I saw that on the paper I said, ‘Jim, you are caught.’” “Have you ever seen anyone do this before?” (as the knee-jerks are tested.) “It is like a dream to me that I saw a doctor do that to someone in the hospital.” When

asked to describe Dr. N. whom he claimed to have previously seen, he replies that he was a tall man with a beard (incorrect). He was then asked if he saw Dr. N. or Dr. C. in the room, and he replied, "No." It is argued with him that the hospital records show that there never had been another J. L. here, but he persists in his statement good naturedly.

November 11, 1903—After the staff meeting the patient was removed from the dormitory where he had been since his entrance to the hospital, placed in a separate room, and his chart, which had previously been hanging at the foot of the bed, taken away. He remains in this room during the following examinations: "How are you this morning?" "I feel pretty well. I must be a long time lying down in this hospital." "What hospital is this?" "Worcester Insane Hospital." "How long have you been in this hospital?" "I couldn't tell." "How long in this room?" "Yesterday" (correct). He then adds, "No, it was not yesterday. Wasn't I out of this hospital yesterday? I was out in another hospital in a wheel chair. You was there and Dr. N. was there. Your name is Dr. C." (He refers to having been brought to the office in a wheel chair, in order to be presented before the staff meeting.) "Did you ever see Dr. C. before?" "I often saw him. I saw you in the Boston hospital." "Did I appear there as I do now?" "About the same." "What was that about seeing me when you visited the other J. L.?" "There was a Dr. N. and a Dr. C." "What did Dr. C. look like at that time?" "It was you unless I am mistaken, and I saw a stout doctor, Dr. N. He looks the same as he looked yesterday." "Are there two Dr. C's?" "Not as I know of. But I wasn't in this hospital at that time. It must have been another Dr. C., but I guess it was you. I seen you before for a few minutes. But I tell you that I wasn't here at that time. It must have been another doctor of the same name. I was out in a chair yesterday, and there were some more doctors there." "What did they ask you?" "I couldn't tell you. I guess they took me to another part of the hospital. I see T. I. on the charts. I guess this is Taunton Insane Hospital." "Were you ever a patient in the Worcester Insane Hospital?" "No, doctor." "Do you really think you are in Taunton?" "It isn't Boston. This is either Taunton or Worcester. I guess it is Taunton. I once visited the Worcester Insane Hospital." "Does this look like the hospital you visited?" "No, it was down by the lake." "Do you remember being in Worcester in a ward with lots of beds?" "There is a ward outside with ten or twelve beds in it. Come to think of it, I guess I was a patient in the Worcester Insane Hospital. This must be Taunton, and I was saying to myself this morning, 'Jim, you must be in Taunton.' I guess it was that hand there that I was in Worcester for." "Do you remember being in the Worcester Insane Hospital as a patient?" "Only just now." "I

thought that you said this was Taunton?" "It says so on the sheet." "How can this be both places?" "It can't be, this must be Taunton. I saw Dr. N. in Worcester, and I guess I see you there too." "What was done to you in Worcester?" "I guess I was off my head." "From what?" "From rum." "How long were you at Worcester?" "I can't say." "When did you come to Taunton?" "I can't tell, doctor. I don't remember leaving home." "Isn't it peculiar that after calling on the other J. L. at Worcester that you should be a patient in the same hospital?" "I was thinking about that myself. This is Taunton. I was in Worcester once as a patient." "Where are you now?" "Taunton Hospital. I was a patient once in Worcester, and this time it is Taunton I am in. I guess I was off my head when I went to the Worcester Hospital. I also was down there to see this J. L." "Who was your doctor at Worcester?" "Dr. N., and I guess you, too." "Who are your doctors here at Taunton?" "You." "What is my name?" "Dr. C." (correct). "How is it that you have seen me both at Worcester and at Taunton?" "Doctors are supposed to go around to different hospitals." "When I was in Worcester did I look the same as I do now?" "About the same." "Were you in a single room or a ward at Worcester?" "A ward." "Were you ever in a single room while there?" "No, I was always in a ward." "What did the ward look like?" "The same as the ward out there." "How many attendants did you have at Worcester?" "Three or four" (three). "And how many at Taunton?" "I can't say."

November 12, 1903—(Patient remains in a room). "Who was the other J. L.'s doctor?" "I don't know; he used to talk a lot about him." "Was it Dr. J?" "No." "Dr. S.?" "No." "Dr. H.?" "No." "Dr. C.?" "That is the man." "Did you ever see Dr. C.?" "I saw him once." "What did he look like?" "He was a medium sized man, not very tall. He came into the room where he was to examine him, and then I went away. I wouldn't know him if I saw him now. He was a good friend of this J. L." "Did he have a mustache, a smooth face or a beard?" "A mustache." "Have you ever seen Dr. C. since then?" "I might have, but I don't know. I think he wore glasses, too. He came in to see this J. L. in the forenoon." "Did you speak with the doctor at that time?" "No, doctor. I bid him good day, that is all." "Would you know Dr. C. if you saw him?" "No, doctor." "How was he dressed at that time?" "It was in the summer time; he had a light suit of clothes on. There were two doctors there." "Do you remember the other doctor's name?" "No, sir." "What did he look like?" "Medium sized, stout and reddish in face. I can't say if he had a light mustache or not."

November 13, 1903—(Patient remains in a room). "What place is this?" "Taunton Insane Hospital." "Were you ever in



Worcester as a patient?" "Yes, for my head." "How long ago was this?" "Twelve or fifteen years ago." "How long were you there?" "About two months." "Were you in a room or a ward?" "A ward." "Were you ever in a room?" "I was in a ward all the time." "Was your mind affected?" "Not at that time." "What is my name?" (Dr. C.). "Dr. C." "Who was your doctor at Worcester?" "Dr. N." "Is Dr. N. here too?" "Wasn't he here yesterday?" "What did he do yesterday?" "I was out yesterday in a wheel chair with my clothes on. I went into an office, where there were several doctors" (referring to staff meeting of November 10, when the patient was taken out of bed, dressed, placed in a wheel chair and taken to the office). "Did you have a Dr. C. at Worcester?" "Yes." "What is my name?" "Dr. C. You are the same doctor." "But I was not a physician at Worcester fifteen years ago." "Perhaps you visited there." "Describe the ward in Worcester." "It was large, with twelve beds on each side." "While here, have you been in a room all the time?" "No, I was once in a ward." "How many beds were there in that ward?" "About eleven or twelve beds on each side." "Does it resemble the ward in Worcester?" "It is laid out that way." "You visited a J. L. at Worcester once?" "Yes." "Were you a patient in the same hospital as the other J. L.?" "I couldn't say." "What hospital was he in?" "Down by the lake, the Lake Hospital." "What hospital were you in?" "On the hill. There are three hospitals on the hill." "Name them?" "I can't." "Are they all insane hospitals?" "The furthest near the bridge is the insane hospital, and there was a hospital below the bridge, which, if you were in, you were a goner, and the third was the insane hospital on the hill." "How long after you were a patient in Worcester was the other J. L. there?" "A few years." "How long have you been here in Taunton?" "I have no more idea than this table has, but I guess I have been here at Taunton for about a year." "Why are you here?" "I guess I am off my head from booze." "What do you notice about yourself that is wrong?" "There must be something wrong with me; too much liquor. My stomach went back on me." "How is your memory?" "I can't remember further back than yesterday."

November 18, 1903—This morning the patient was taken out of the private room and removed to a dormitory different from the one in which he had been at first, before he was given a private room. The marks on the bed clothes were changed from T. 1 to D. 1., but nothing was said or suggested to the patient about this change. This morning he remembers being moved; says he is in Worcester, but is uncertain about it, claiming in the same sentence that it might be Taunton. "This is Taunton then?" "That is what it says. I was in Worcester once to have this finger taken off." "How long ago?" "Twelve or fifteen years ago."

"How long have you been in Taunton?" "I couldn't just say." "Were you always in this ward?" "No, doctor, I was in a room to the right with four beds in it." "How long were you in that room?" "I couldn't say. I was in a long ward before that, where a fellow broke a window." (Probably referring to a patient with excited and destructive episodes.) "When in Worcester, were you in a room or a ward?" "A long ward." "Were you ever in a room at Worcester?" "I couldn't say." "But you now think you are in Taunton?" "I thought I would wind up in Taunton." He looks on the sheet, and reads D. I. It was T. I. on the other. "What does D Stand for?" "Is it ward D?" "What place do you think this is?" "A ward or something." He again looks at the sheets, and says in a low voice, "Deer Island."

November 21, 1903—Since the patient has been in the other dormitory with D. I. substituted for T. I. by marking his night shirt, bed blankets and sheets, he has remained quiet and happy as usual. When his attention was directed to the substituted letters, and he is asked their meaning or their relation to the Taunton or Worcester Insane Hospitals, he laughingly replied: "It is either Deer Island or Devil's Institute." *Danvers Insane Hospital* being suggested, he says, "I never thought of that." As there is a failure of further elaboration to either the letters or to suggestions, the substituted letters are removed.

November 23, 1903—"What hospital is this?" "Taunton Hospital." "How long have you been here?" "I couldn't tell." "Were you ever in a hospital before?" "In a hospital in Worcester." "What for?" "For my hand." "Was your mind upset at that time?" "Not at that time." "Did you ever go to a hospital because you were out of your mind?" "No, doctor." "When in Worcester, were you in a room or a ward?" "A large ward." "How many beds were there?" "I couldn't tell." "Describe the ward?" "A long ward." "Were you never in a room?" "No." "How long ago were you in Worcester?" "Thirteen or fourteen years." "What about the other J. L.?" "He's dead." "In what hospital was he?" "Down by the lake." "Where?" "In Worcester." "How long ago did you visit him?" "Quite awhile ago." "Did you remember the visit distinctly?" "Oh, yes." "How often did you visit him?" "Two or three times." "Where did he die?" "In Boston, at his brother's house." "How long after he left the hospital did his death occur?" "I couldn't say." "Were you in that same hospital?" "No." "In what hospital were you?" "I was never down by the lake. I couldn't tell the name." "Who was your doctor?" "You." "How is your memory?" "I couldn't remember further back than yesterday." "Can you remember the occurrences of the last few months in order?" "No, doctor." "Do you get them a little mixed up?" "Yes." "You remember things but you don't know the time of their

occurrence?" "Yes, that's it." "Do you ever get mixed up in the time?" "Yes." "Do you ever feel as if there were many gaps in your memory?" "Oh, yes." "When you think of things do you ever have the feeling that the same things have happened before?" "No." "Is any part of your memory a blank to you?" "No."

During the following two months the memory disorder remained unchanged. He still persisted that he was in the Taunton Insane Hospital, that he formerly was a patient in the Worcester Insane Hospital, and that at the latter place he had a friend "J. L.," whom he visited several times, and whose physicians were Dr. N and Dr. C. On December 17, the neuritic pains having disappeared, with a coincident marked improvement in his physical condition, he was allowed to get up from bed. The knee jerks, however, have remained persistently absent. The following examination was made:

February 18, 1904—"What place is this?" "Worcester Insane Hospital." "What month?" "February 18." "What is the day of the week?" "Thursday" (correct). "What is the year?" "1904." "How is your memory now?" "Pretty good." "Is it better than when you came here?" "Oh, yes." "How long have you been in this building?" "I couldn't say." "What is my name?" "Dr. C." (correct). "What about the other J. L.?" "He is dead. I was up to see him once. He was in the Lake Hospital. This is the Hill Hospital." "Are there two insane hospitals in Worcester?" "Yes, this one and the one by the lake." "How long ago did you visit the other J. L.?" "Not long before he died; three or four years ago." "What doctors did he have?" "Dr. N. and Dr. C." "Did you see the doctors when you visited him?" "Yes. I saw you one day as I was coming out of the door." "What did the other J. L. look like?" "Stout, as large as me, red face and brownish-red mustache." "What was his sickness?" "Caused by drink." "How did it affect him?" "It affected his mind." "What did you notice when you talked with him?" "He talked strange; he said he saw some things, he said he thought he did, and I told him it was only imagination. One day I was in the room and he says to me, 'Jim, did you see that go by there?' and I asked him what it was, and he again said he saw it, but he didn't tell me what he saw. He didn't talk proper at all." "How long had he been in the hospital before you called on him?" "A couple of months." "Where did he die?" "In the hospital." "Of what did he die?" "From the effects of his drink." "Is your sickness anything like his?" "I never saw things." "Are there really two J. L.'s?" "Oh, yes; he was a far-off relative of mine. He was born in Roscommon and I was born in Galloway. They are only about ten miles apart." "Did you know him in Ireland?" "No, but my father talked about him.



The summary of the case presents the following chief points: Following protracted alcoholic indulgence with several attacks of typical delirium tremens, the patient began to show signs of failing memory, and finally there supervened a moderate grade of polyneuritis. He fabricated extensively but consistently, the capacity of attention became greatly diminished, and, therefore, the *Merkfähigkeit* disturbance was very severe. At first he claimed that another patient of the same name was formerly in the Worcester Insane Hospital, and this he later elaborated until the paramnesia showed the following striking features: That, not only a patient of the same name existed, but that he visited him several times, he bore a minute physical resemblance to him, that he was insane as the result of excessive alcoholism and suffered with hallucinations of sight. Furthermore, he attempted to describe the hospital grounds, buildings, ward, nurses, etc., at the time of the alleged visit to the patient, and finally he added the names of the physicians, under whose professional care, not only he, but the other patient of the same name had been. He gave an incorrect description of the physicians whom he saw upon his visits to this other J. L., asserted that he, too, was under the care of the same physicians, and when confronted by the statements that the descriptions did not coincide with the real personages, he replied by adding that these physicians had changed somewhat in appearance during the intervening years. A series of experiments impressed upon the patient the idea that he was in another hospital, although he was formerly an inmate of the Worcester Insane Hospital, and on several occasions had visited his namesake there.

*Case II: Alcoholic Deterioration, Reduplicative Paramnesia with Marked Disturbance of the Sense of Familiarity.*—The patient, T. M., is an Irishman, born in 1864, by occupation a laborer in a sugar refinery, which position he held for sixteen years. There is no specific history, but for a number of years the patient has been the subject of steady alcoholism. During the last year he has generally become less steady and industrious, working only at odd times, and it was noticeable that he drank more than before. For five months before admission he did absolutely no work, lay around in his tenement, while his family were in want, and accused his wife of going with other men. The memory began to fail, although more specific facts on this important point are not available, but it is stated that at home when

he visited any place he never spoke of having been there before. Occasionally he would vomit in the morning. His apathetic and indifferent manner finally led to his commitment on March 11, 1904.

In his attitude on admission he was quiet—not especially indifferent, but well oriented. No hallucinations obtained, and he expressed a few vague, unstable ideas relative to his wife's infidelity. There was no noticeable defect in the recent memory. He stated spontaneously for the first time on March 10, 1904, that he had been in the hospital before. "I was just put in and let go." "What were you here for?" "Just about the same." "What was your name then?" "M." He did not elaborate on the above point, or, indeed, mention it to any extent until April 20, when he again stated that he was in the hospital a year ago, entering on March 11, 1903, remaining five weeks and then going home. The following are the subsequent interviews with the patient and reported rather fully:

April 27, 1904—"What is your name?" "T. M." "How old are you?" "Over forty." "Where were you born?" "Ireland." "How long have you been in this building?" "Since March 11." "What place is this?" "Worcester Insane Asylum." "What is the date?" "Wednesday, April 27." "What year is this?" "1904." "Do you know me?" "Doctor here." "What is my name?" "I ain't sure." "Why were you sent here?" "I wasn't told." "Was your mind affected?" "No." "Were you ever here before?" "About a year ago." "What ward were you in at that time?" "The same as now." "How long were you here then?" "Four or five weeks." "For what purpose?" "I wasn't told." "Who was your doctor then?" "I was speaking to you when I was here a year ago." "What did I ask you?" "About the same as you ask now." "How many doctors did you see then?" "I saw you and an old man, a stout man." "Were you really here before?" "Yes." "But no one remembers you?" "You must remember." "Does everything look familiar to you?" "Yes, I was sitting in this room, and you were talking to me, and the table was there and the clock was there." "Has anything changed?" "No." "Do I look the same?" "Yes." "What did you do after you left here?" "Worked in the American Sugar Refinery a few days after I left here, and I worked up to last September. Then I loafed, because I had asthma and bronchitis, until I came here." "Can you remember everything since the last time you left here?" "Yes." "Did you ever lose your memory for a time?" "No, I never did." "Who brought you here then?" "A society." "In what month were you here the last time?" "In the month of March, at the same time I came here this time. I was speaking to you before. You tapped my knees with a rubber billy" (referring to testing of knee-jerks with the percussion hammer).

April 29, 1904—"How long have you been here?" "Since the 11th of March." "Why did you come?" "Putting a note for ——" "For what?" "Mayor Poole from Ireland, members of society brought me here. I worked for eleven years in a sugar refinery. There is a Queen's run in Roxbury." "What is that?" "Everybody is talking about it. Mr. Pope said they would put me in Worcester Prison. Mr. Bandon, of County Cork, told me about it." "How long ago?" "Twenty-six or twenty-seven years ago." "Were you ever in prison before?" "No." "Were you ever in an institution before?" "Yes. I was here before." "When?" "Over a year ago." "Who sent you?" "Some man." "What man?" "Society." "What society?" "Hibernians." "How long were you here?" "Six weeks." "Do you remember anybody?" "Yes, these two doctors. I sat in this very same place." "What ward were you in?" "Ward 2." "Did any doctors see you before you came?" "No." "You are mistaken, you were never here before." "Oh, yes, I was. The doctor now is sitting in the very same place." "When did you say you came before?" "Two years ago, about the 11th of March. I came down, was here for a day or two, then went home." "Wasn't it three years ago that you were here?" "No, it was two years ago." "Do they look natural to you?" "Oh, yes." "Isn't there another man here who resembles you?" "Not that I know of." "What is the name of this ward?" "I haven't inquired." "Didn't you tell us here two years ago about being here before that?" "I have been here three times." "Are you sure it isn't four?" "Well, only a short time once, too short to count. But I have been here three times."

April 30, 1904—"What place is this?" "Worcester." "And the building?" "A hospital, a prison for sick patients, insane people." "What is the date?" "Saturday, April 30, 1904." "How long have you been here?" "Since March 11." "How long is that?" "Two months, except eleven days." "Are you married?" "Yes." "How long ago?" "1891." "Have you any children?" "Six." "How old is the eldest?" "Born in 1892." "And the youngest?" "About a year old." "Were you ever in a hospital before?" "In here." "How long ago?" "About two years ago." "When did you come?" "About the month of March." "How long did you remain?" "Five or six weeks." "And then?" "I went home." "What have you been doing since?" "Working in the American Sugar Refinery." "What wards have you been on this time?" "Ward two, and I am on Gage Hall now." "Describe Gage Hall?" "A round building" (correct). "How many patients there?" "Over thirty" (correct). "Do you recognize anyone here?" "Those are faces I have seen before." "In what wards were you when you were here before?" "The same wards." "Who were your doctors



then?" "You." "Anyone else?" "The other doctor who was by the stairs yesterday." "Did I talk with you when you were here before?" "Yes." "Where?" "In this room." "What did I ask you?" "The same as you are asking now." "Does everything look familiar to you?" "Yes." "Do you remember this room?" "Yes." "Any change?" "Just the same." "When you were here before didn't you say you had been here previous to that?" "I was here before that, too." "How many times have you been here then?" "Three times." "When were you here the first time?" "A long time ago." "When you were here then, didn't you say that you had been here before that?" "No." "Can you remember distinctly what occurred between each time?" "Yes." "What did you do after leaving here the first time?" "Went to work." "How long were you out then?" "Two or three years." "Each time you were here did the very same things happen?" "Yes." "Were you on the very same wards?" "Yes." "When did you find out that you had been here three times?" "I remember that." "For how long have you known it?" "Right along." "Has your memory always been good?" "Yes." "Ever liable to forget things?" "Once in awhile." He admitted moderately steady alcoholism, but denied delirium tremens. The visual memory pictures for familiar objects and buildings were rather indistinct, were not specific in any sense and lacked outline. There was also an impairment of the gustatory, auditory and osmic memories. The calculation was fair, considering his educational opportunities. There was no disturbance of the *Merkfähigkeit*. The associations were quite narrow, with a frequent sticking to the same word, even when familiar objects were mentioned. He was quite unable to associate, and there were many gaps and frequently only mere repetitions could be elicited as the test words were made less concrete. The association string was very poor, he went back and forth on the same two words indefinitely.

*The Summary of the Physical Examination Shows the Following Chief Points*—A well developed and muscular Irishman. No tenderness over the muscles or along the nerve trunks. The pupils are equal and react promptly to light and accommodation. There are no cutaneous sensory disorders, no hemianopsia, color disorder or limitation of the visual fields. The reflexes were brisk and equal. There was no ataxia and no swaying in Romberg's position. The tongue showed a slight fine tremor. The muscular sense of position was unimpaired. The other physical data were negative.

May 2, 1904—"Were you ever in this ward before?" "About two years ago." "For how long?" "A few days." "Then where did you go?" "Home to South Boston." "Does the ward look the same?" "The very same." "Any change at all?" "No." "Do you recognize anyone here?" "I am not sure." "What

about the attendants?" "The same." "What are their names?" "I don't know." "What is my name?" "I forget, but I heard it before." "When you do anything here, does it seem as if you did it before?" "I polished the brass on the beds this morning, and I also did it before." "The same brass?" "Very same." "Did you do it in the same way?" "Yes, but I haven't finished it yet." "What about the part you haven't finished?" "It ain't done." "The part that is done, does it seem as if you did it once before?" "I did it all two years ago. I did it all in one day then, and I will finish it up in an hour from now." "What things seem to you as if they had happened before?" "Only being here." "Is everything the same?" "I don't see any change." "Are there any parts during the last two years that you fail to remember?" "No, doctor." "When did you find out that you were here two years ago?" "When I came to the hospital." "Did you know it before that?" "I didn't think of it." "While at home, did you know that you had been here?" "Yes." "Did you speak to your wife about it?" "She knew it." "How long have I been talking to you now?" "Five or six minutes" (practically correct). There is then read to the patient a recent newspaper heading: "Japs Whip Russians in a Sunday Battle," which he disclaims ever having heard before. It is read to him for the second time, about five minutes later, and he replies, "I heard it a few minutes ago, but never before that." Other recent newspapers items are read to him, but he persists that he never heard them before. He then adds perfectly spontaneously: "I have been here four times." "How long ago were you here the first time?" "Five years ago." "How long did you stay?" "I couldn't say." "Where did you go after that?" "To work." "How long ago were you here the second time?" "I couldn't say." "The third time?" "About three years ago." "The fourth time?" "This is it." "When you were here the first time, didn't you say that you were here several times before that?" "Oh, no."

May 9, 1904.—"How old are you?" "Over forty." "Were you the same age when you were here before?" "I put it down the same." "How many times have you been here?" "Four or five times." "Were you the same age when you were here the first time?" "Oh, no." "Have you grown older?" "Of course, every day." "Tell me how you feel when you tell me these things." "I have been here before." "Is it only a memory or a real event?" "It is real." "Do you have the same kind of meals as when you were here before?" "Yes." "The very same things to eat?" "The very same." "No change?" "None." "Do you know the sugar refinery has burnt up?" (told merely for an experiment). "No, I didn't; that is too bad (surprised). I hate to hear it." "Didn't it burn up when you were here before?" "No, no, it didn't." "Then everything isn't the same as before?"

"Well, two days after leaving here before I worked there." "Then that is entirely new to you?" "Yes." "And actually you have found something different?" "Only about the sugar refinery." "Did you know that your wife had moved?" (actual occurrence). "No, I didn't." "Is that something new?" "Yes." "Didn't I tell you these things when you were here before?" "I don't think so." "Are you surprised to hear these things?" "Yes." "Are you surprised because they are new occurrences or because you have heard them before?" "Because they are new."

May 10, 1904—"What did I tell you yesterday?" "That the American Sugar Refinery burnt." "Anything else?" "Nothing new." "Did I ever tell you about the sugar refinery before yesterday?" "I don't think so." "Didn't I tell you the same thing when you were here before?" "I don't think so." The patient recalls perfectly the date of his marriage, the names and ages of his children, how long he has been in America, where he landed, the name of the steamer on which he sailed, and also is fairly well informed on current events.

May 15, 1904—"When you are alone can you recall occurrences of your previous residence here, or is it necessary for you to see something going on before you realize that it occurred before?" "I don't have to see anything going on." "But when you see it, you know it occurred before?" "Yes." "Would you remember these things without seeing them?" "Yes." "At home, did you remember being here before?" "Sure I did." "Did you speak to your wife about it?" "Yes." "What did she say?" "She knew it." "How soon after you came to this hospital did you realize that you had been here before?" "As soon as I came in."

Summarizing this second case, we find the following striking features:

As in the first case, the etiological factor was protracted alcoholic indulgence, but instead of leading to a polyneuritic mental disorder, there supervened a deterioration of conduct, mostly in the ethical and moral fields. The orientation always remained intact, and the specific memory, outside of a certain vagueness of visual memory images, did not suffer. There were no physical signs of polyneuritis, and no stigmata of hysteria. At a period whose date cannot be exactly determined, there arose a peculiar memory disorder, an illusion of memory, in which the sense of familiarity became markedly affected. He asserted that he had been in the hospital several times previously, was always sent there for like causes, and remained under like situations and conditions; every event that occurred he claimed was familiar to him,



by reason of its occurrence at his alleged previous residence in the hospital. He thus reduplicated all his surroundings, with its concomitant events, down to minute details. The paramnesia was a stable one, reduplicative in type, relating to recognition, localization and certitude, but without any complex elaboration as in the first case. There was no definite amnesic period, but a rather marked disturbance of the time order and the time sense.

The discussion and analysis of these complex phenomena present many difficulties. It is necessary to study the state of the anterior memory by the ordinary clinical methods, but yet in specific isolated cases of which the entire mental disturbance seems to be pre-eminently a memory disorder, more complex and elaborate data are necessary. Sollier's scheme for the study of the amnesias is of equal value when applied to the paramnesias. This comprises a multiplicity of tests and data, and they have been in great part utilized and found of great value in the study of our cases. It is necessary to establish several points, each pre-eminently of paramount importance. For this purpose we study the type of the paramnesia, its evolution and elaboration, its relation to the patient's personality and to any other memory disorder, if such exist, the condition of the anterior memory, the state of memory outside of the specific disturbances, and finally the mechanism and probable explanation of the paramnesic memory disorder.

As far as can be determined, the memory in both cases was intact before the appearance of the mental disease. The specific paramnesias first made their appearance at a certain period of residence in the hospital, after the patients had become familiar with the entire or certain portions of their surroundings. In the first case this point could be established with a fair amount of certainty; in the second, it had already existed some time before it was definitely recognized and studied. In both cases alcohol was the prime etiological factor; in one it led to a polyneuritic mental disorder, in the other, to a certain amount of deterioration of conduct, intellect and lack of judgment. We know, through experiments in Kraepelin's (6) laboratory how protracted may be the psychical duration of moderate doses of alcohol, the increased tendency to errors being especially prominent. We must look upon memory, not as a collection of imprints, but as a

group of dynamic associations, stable and easy to revive. Each remembrance is composed of a certain number of elementary images of unequal intensity, but which have an essential common characteristic of being associated with each other. If there is a periodic amnesia the memory images either drop into the subconscious, or become very feeble and incapable of synthesis. In my cases the memory instead of being a continuous series of events, as it is in normal individuals, had certain episodes split off, dropped out of the field of the conscious into the subconscious, and the patient was unable to voluntarily revive them. The sense of fusion was lacking, there was a solution of continuity in the consciousness. In consequence of the inability to bridge over the gaps that occurred in the continuity of the memory, a paramnesia arose, reduplicative in type, by which the memories just behind the gap were looked upon by the patient as new and separate events. As this took place while in the hospital, the paramnesia is entirely connected with the patient's stay therein.

Pick, in discussing his case of general paralysis, attempted to explain the phenomenon as follows:

"Supposing that somebody else, even a person as mentally weak as our patient, but without his disturbance, had gone through the clinical stay, the stages of which he later on regarded as different events, such a dissociation would certainly not have set in, because the number of mental impressions, identical in both periods of time, and the corresponding and connective pictures of memory, would not have permitted such a disorder of continuity to occur. It is different with our patient; undoubtedly this continuity did not in its entirety come to his consciousness, the influence of alternating events, which for every other person would have been of little importance, became predominant, and thus the uninterrupted series of events are to him divided into two different groups."

The phenomenon is really a perversion or disorder of the feeling of the sense of familiarity, which plays an important part in memory and recognition, and Pick was of the opinion, at the time of the publication of his first paper, that the reduplicative paramnesia was a disturbance of this sense of familiarity. Later observations, however, led him to adopt the following view:

"When this failed" (i. e., sense of familiarity) "the situation

just experienced would not be a repetition of the last, but a new impression. In consequence there appear to them, on one hand, the pictures of memory, as if like the situation just in its course; on the other hand, they are sure that they have actually experienced the earlier situation; that in consequence of mental disturbances they cannot identify one situation from the other, which become duplicated and eventually divided into a multiplicity of events."

A careful study of Pick's clinical histories, and also my own, have led me to conclude that the probable explanation of this memory disorder can be referred to both the phenomena of dissociation and a disturbance of the sense of familiarity. It is the inability to bridge over the dissociated memory images, associated perhaps with a feeling of having experienced certain events or having been in certain places or with certain individuals before, and being unable to connect or correct this sense of familiarity with previous or present experiences, on account of these gaps, that the peculiar reduplicative paramnesia causes. In my cases, the symptom-complex did not appear until after a certain period of residence in the hospital, and the previous memory images associated with a particular ward were dissociated from his present perception of the same ward. In this way there arose two and later more images, distinct in his consciousness, but because dissociated from each other, his present stay in the hospital was looked upon as the experience of a former first residence there. In the first case to this was added phenomena of the same origin and nature relating to his own personality, but duplicated, because naturally connected with the other reduplication. It is really a polyneuritic fabrication, but a stable one; an illusion of memory, but a clearly defined stationary illusion. There is no change of ground or attitude and no contradictions; the only mutability consisting of a further and more complex elaboration, the result of a misinterpretation of surroundings and the drawing of erroneous conclusions from certain markings on the hospital property.

A mental experience, according to Sidis, is never lost, but is always present in the subconscious in a diffused, dissociated form, and amnesia, for certain events, whether retrograde, retroactive or in gaps, does not imply a state of unconsciousness during the



amnesic period. This is shown by the fact that the memory can be revived in the hypnotic state.

Memory is a series of events, a certain effort of synthesis is necessary for reproduction, and where this fails, or certain images became dissociated gaps remain. If these gaps occur before a certain event, an amnesia results; if they occur in the midst of a series of like events, the memory image is duplicated in the consciousness, and there results a feeling of having experienced present states before. These gaps are unknown, and therefore not appreciated by the patient, because they are in the subconscious, and therefore no amount of clinical examination, however minute and prolonged, will avail to bring them forth. Neither of my patients, therefore, had any conception or feeling of a gap in the memory, although it really existed, and its ultimate effect was a reduplication of their hospital residence and the surroundings and personages thereof. In the second case, particularly, everything seemed familiar and was claimed to have occurred before, because events that really did occur in the past were dissociated from events of like nature in the present. This, however, only applied to the inevitable routine of a hospital residence, anything absolutely new and surprising was naturally not included in the dissociation.

Amnesia is particularly liable to occur in acute alcoholic intoxication, and this becomes more intense as the action of the drug is protracted by steady and increasing doses of alcohol, which in time may lead to that form of mental disease known as the polyneuritic psychosis, certain hallucinatory paranoid states, or to forms of intellectual or ethical deterioration.

Our patients had a dim idea of having experienced their present conditions before, but on account of the failure of synthesis in the continuity of the memory they were unable to connect it with their present stay in the hospital. Associated with this was not only a disturbance of the time order, but also a prolongation of the time sense, whereby the memories for occurrences just behind the dissociation appear to be forced further back in the past. This led the first patient to placing the stay in the hospital of the other patient of the same name some years back, and also led him to conclude that he both visited and was a patient in this same hospital a long period before his present

residence there. In the second case, this prolongation was equally prominent, and resulted in referring each hospital residence to periods of time that increased in length with the increase in the multiplicity of the dissociated periods. It has been recently observed by von Bechterew<sup>7</sup> that the sense of time is often disturbed in mental diseases. Even in the absence of any disorders of consciousness, it may occur in patients who are unable to orient themselves in time. This disturbance may consist of a sensation of shortening or an extraordinary lengthening of the time sense, and he explains it by the inability of the patient to recognize his anterior memory representations. He records the case of an alcoholic who, in the course of an hallucinatory delirium, showed in a particularly well marked manner this disorder of the shortening of the time sense.

The memory pictures in the first case, as shown by the clinical tests, being vivid, the dissociated illusions of memory were also vivid. In the second patient they were vague, and the paramnesia therefore dealt only with broad generalities and with only a few specific events. The fact that certain episodes drop out of the consciousness and leave gaps, probably finds its explanation as being due in part to the general memory deterioration and in part to the lessened capacity of attention and impressionability of the patient for certain concrete memory images, whereby only the most vivid and striking are impressed upon him. The reduplicative paramnesia in these cases is a stable one, related in the same narrow manner because the associations are narrow. It may, however, be episodic, that is, during the interview the patient may show evidence of this symptom-complex, but later examinations will fail to bring it forth. I have observed this in two cases. One was a Korsakow's psychosis, and the etiological factors of lead and alcohol, and in whom there existed a moderate grade of polyneuritis. In addition to the typical clinical picture of disorientation, fabricating delirium, suggestibility and a marked memory disorder for recent impressions, an examination one day revealed the following: (At the time of this interview the patient was employed in doing some painting on the wards.)

"How long have you been in this building?" "About three weeks" (one year). "Where were you before coming here?" "In old Cambridge." "What building is this?" "A hospital."

"Did you ever work in a hospital before?" "Yes, in Worcester." "What hospital in Worcester?" "Insane Hospital. I worked there one week." "Who was your doctor there?" "I don't know." "What hospital is this?" "I don't know." "How long ago did you work in the Worcester Insane Hospital?" "Some years ago." "How did you happen to be there?" "I was working." "Were you a patient there?" "No, never a patient in any hospital." "What are you doing in this hospital?" "A little painting." "Are you a patient here?" "Certainly." "What is your illness?" "Can't say. Suppose I was sick." "In what way?" "Suppose in the nut." "What is the trouble with that?" "Out of kilter." "What made it so?" "White lead, maybe." "Did the hospital in Worcester resemble this?" "It did." "Did you ever see any doctors while there?" "I did not."

At later interviews the patient persistently denied any feeling of having been in Worcester before.

The second case was that of a general paralytic, with a luetic history and resulting marked alopecia. At first he was expansive with some disorders of identification, later he became extremely restless, confused and disoriented. After some weeks this condition showed considerable amelioration, but a prominent feeling of well-being remained. The following condition was only elicited during one examination. After he had given an account of his trouble, in which he showed some slight time disorientation and a little memory defect, he added spontaneously: "I was here (Worcester) four years ago for typhoid fever." "For how long?" "About two months." "Who was your doctor there?" "I don't know." "Describe him?" "A little black mustache." "In what ward were you?" "A hospital ward." "What did it look like?" "It had photographs and battleships on the walls, and they worked the biograph on me to see how much I could stand." "Did the Worcester Hospital resemble this?" "Not exactly, there is a lot of new things here." "Is this the same hospital?" "Yes." "Was I a doctor there?" "I don't know for sure, but I think you were." "Did I look the same as now?" "No, you had only a little mustache then." "What is my name?" "I forget." "What did I do to you?" "Cured me." "Did I examine you?" "Every way, with a little hot iron on the chest and under the arms, and you said you would make a good man out of me. And you examined



my feet and legs and arms with a hammer. You stuck me in those places. Then you swung my feet, too" (referring to the physical examination a week previously). "What ward were you in before?" "I guess this ward." "All the time?" "No, I was in the hospital ward for awhile." "Since coming here this time have you been in this ward all the time?" "No." "In what other wards were you?" "Hospital ward." "Did it resemble the hospital ward you were in before?" "Yes." "How many nurses there?" "Four or five" (three). "Are you sure that you have been in this hospital before?" "I am sure of that; I was here two months."

At later examinations nothing of the above could be elicited. The patient had a vague remembrance of the physical examination, but he places it at his alleged previous residence in the hospital. He had been in the infirmary ("hospital") ward for some time, but later was transferred to a ward for more chronic patients. The period during which he was in bed in the infirmary ward, and also the ward itself, he reduplicates in all his statements. In addition there was also a prolongation of the time sense.

In these two cases, and also the delirium tremens case of Pick, the paramnesia was transitory and episodic, in contradistinction to the stable and elaborate reduplication of the other cases. The episodic instability of these cases probably finds an explanation in that the paramnesic memory disorder has not become sufficiently organized in the patient's mind to become more stable, and Burnham has lately given the same explanation to account for his cases of retrograde amnesia, where the memories nearest to the point of accident or insult fail, because of a lack of sufficient organization.

The perception of reality requires a certain effort of synthesis, and if this perception is not sufficiently synthetized with the observer's personality, things that occur seem unreal, strange and reduplicated, and in addition there may coexist a feeling of depersonalization. Erbsloh's case<sup>s</sup> of an occipital tumor with hallucinatory confusion, right homonymous hemianopsia, disturbance of equilibrium and pressure symptoms of headache in the occipital region, may perhaps serve to throw some light on this. The patient had a peculiar paramnesia, and the author looks

upon the fabrications as a symptom of cortical irritation. The thoughts which the patient expressed appeared to have happened before, and were looked upon by him as remote memories, because two new impressions closely allied may be received, but were not associated or synthetized. One of the peculiarities of association memory is that two processes which occur simultaneously, or in quick succession, will leave traces, which fuse together, so that if later one of the processes be repeated the other will necessarily be repeated also. This sense of fusion is lacking in our cases, and therefore the repetition of one memory image fails to arouse the other, on account of this dissociation or lack of synthesis, and what would otherwise be one continuous series of events falls into two, or more than two.

Here then we see the syndrome occurring in general paralysis, senile dementia, delirium tremens and in certain alcoholic psychoses, either of the type of Korsakow's disease or a general long deterioration. In all of these the memory is liable to be profoundly affected, with a special tendency to the formation of fabrications and a lessened capacity for recent impressions. The fabrications may be varied and romancing, or of a more stable character, and in addition we may find other evidences of a severe memory disorder, such as episodic amnesia, vague auditory and visual memory images, and in addition there may be disorientation with a disturbance of the time sense or the time order. Its presence in delirium tremens is readily explained if we remember the close relationship of this disease to the symptom-complex, known as Korsakow's psychosis. In delirium tremens, in addition to the typical delirium, disorientation and tremor, we occasionally find fabrications and the occurrence of slight neuritic symptoms. In two of Pick's cases the memory disorder followed an organic insult; in my two alcoholic patients there was a slow, insidious evolution of the syndrome, whose starting point was difficult to determine. In Pick's case of delirium tremens, and the other two of my own memory disturbance was purely episodic.

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## A CASE OF TUBERCULOUS MENINGITIS WITH SECONDARY INFECTION.

BY DR. S. S. KNEASS AND DR. JOSEPH SAILER,  
OF PHILADELPHIA.

Cases of tuberculous meningitis with secondary infection are sufficiently rare to justify the report of a single case.

The patient, L. F., male, white, 20 years of age, a drug clerk by occupation, was admitted to the service of Dr. John H. Musser at the University Hospital on March 15, 1902. His family history was negative; his previous history was also unimportant, with the exception of one or two attacks of gonorrhea (the last attack occurring within a year of his admission), and an eruption on the skin of the thighs and abdomen occurring shortly before his admission. Otherwise he had always been strong and healthy. His illness commenced with severe headache, nausea, vomiting and diarrhea, and he was obliged to stop work. He developed stiffness and soreness in the back and neck, and suffered from severe pain, starting in his eyes and radiating backward. He was treated for typhoid fever until March 8th, and with the exception of the pain in his head gradually improved. On the 12th of March he became delirious, and continued so until his admission to the hospital on March 15th. On the day after his admission the blood was tested, with the following results: Hemoglobin, 105 per cent; R. B. C., 5,870,000; W. B. C., 10,740 (2.30 P. M.). The urine was light amber, clear, acid and gave no precipitate. The specific gravity was 1030. There was no albumin and no sugar. The diazo reaction was negative. There was a trace of indican, and the chlorides were normal. Lumbar puncture was performed and yielded about 50 cc. of clear colorless fluid, containing a few small flakes of fibrin (?). This fluid responded to the copper test for pyrocatechin, and also showed a pronounced albumin reaction. Smears showed the presence of a diplococcus. The Widal reaction was negative. The patient continued delirious. The following notes were made the day after his admission..

"The patient is apathetic but entirely conscious, and responds intelligently when spoken to. The face is slightly flushed; the conjunctivæ are slightly injected; the left pupil is larger than the right. There is general hyperesthesia. The tongue is dry and covered with a yellowish brown coat; it is red at the edges. The respiration is chiefly abdominal. The abdomen is slightly retracted. The pulse is medium full, compressible, and the artery is distinctly sclerotic. The apex beat is in the fifth interspace in the nipple line; is powerful, appears to diffuse and descend during systole. The first sound is greatly accentuated, and the second sound is clear and sharp. There is a loud, short systolic murmur accompanying the first sound. At the base both second sounds are

greatly accentuated, and the aortic second sound is louder than the pulmonic, but there are no murmurs. On the right side the respirations are loud and vesicular, and there are no râles. On the left side laterally there is an interrupted inspiration, consisting of a series of blowing sounds synchronous with the heart-beat. Stroking the skin causes a distinct, slowly developing *tâche*, spreading about a quarter of an inch to either side; and there is an erythematous eruption over the clavicles, chest and left shoulder. The spleen is not palpable. Kernig's sign is present on both sides; the knee jerks are absent; and there is no spasticity of the limbs. The pupils react sluggishly to light, but there is no apparent paralysis of the ocular muscles.

On the following day Kernig's sign was more pronounced than before. There was no Babinski phenomenon, and the knee-jerks and ankle clonus were still absent. The patient responded slowly to external stimulation, and there was spontaneous movement in both arms. The area of cardiac dulness commenced above at the fourth rib; on the right at the midsternum, and on the left at about half an inch inside the nipple line. The cardiac condition was practically the same as upon the previous examination. Both lungs were resonant anteriorly, and harsh, moist râles, a few on the right and several on the left side, were heard. The percussion resonance was somewhat impaired on the left side posteriorly. The patient was comatose and edema of the lungs had developed. The leucocytes were 17,400 at 9 A. M. On the 18th of March the patient was slightly improved, and the edema of the lungs had disappeared. Cyanosis, however, was marked, and he had incontinence of urine. The leucocytes were 17,000. His condition remained about the same until March 20th, when there was muttering delirium and twitchings in the hands, arms and face. The heart's action was regular but weak, the pulse small and rapid, there was increasing pulmonary edema, and the patient died about 3 P. M.

Lumbar puncture was performed twice. On the first occasion (March 16) about 30 cc. of fluid were obtained with the reactions already described. On the second occasion (March 17) about 10 cc. of fluid of the same character were withdrawn. On both occasions strict asepsis was observed, and the fluid collected in sterile test tubes. It was given to Dr. Kneass for bacteriological examination. The cultures were made upon agar, blood serum, gelatine, and in various other media, and on both occasions the same micro-organism was found. It corresponded in all cultural and morphological respects to the micrococcus tetragenous, and it was supposed, until the result of the autopsy was known, that we had to do with a meningitis produced by this micro-organism. Unfortunately, inoculations were not made with the fluid, but smears, stained for tubercle bacilli, were negative.

The autopsy was performed by Dr. Hendrickson, who made the following informal report.

"The body of a fairly well-developed and well-nourished young male. There is no edema, and rigor mortis is present in both upper and lower extremities. The pupils are equal and normal in size. There are marked areas of hemorrhage into the walls of the intestine at irregular scattered intervals throughout its entire length. The mesenteric lymph nodes are slightly enlarged and firm, and on section are of a gray, translucent color. The pericardial and pleural cavities are negative. The myocardium is dark red and firm, and there is no hypertrophy, dilatation or valvular lesion of the heart. Both lungs show the same condition. The pleural surface is dark red in color, but smooth and glistening, and on section the cut surface is dark red also. The consistency is considerably increased, but on pressure a considerable amount of blood-stained fluid and air escapes. The cut surface of the upper lobe of the left lung shows numerous elevated patches scattered throughout, which, however, on account of the poor light available, cannot be certainly diagnosed, but which suggest the hemorrhage of bronchopneumonia. The bronchial lymph glands are apparently normal. The spleen is slightly increased in size and its capsule is normal, but on section the Malpighian bodies are found to be of increased prominence and slightly decreased consistency. The gastrointestinal tract shows numerous areas of hemorrhage into the mucous membrane, of varying size and shape. The most marked area is in the ascending colon next the cecum, covering fully 10 cm., and encircling the entire gut wall. Other areas are not large and there is no evidence of ulceration. The stomach and pancreas are negative; the liver shows marked congestion; on section the cut margin rolls out, and the consistence is slightly decreased. The adrenals are negative. The kidneys are normal in size; on section the cut margin rolls out, the surface markings are somewhat indistinct, but the consistency is normal. The genitourinary tract is normal. The brain shows marked congestion of the pia arachnoid vessels over both the cortex and the base. Examination of the base of the brain shows a distinct puriform exudate into the meninges over the anterior and posterior perforated spaces, and, to a less degree, in the meninges of the immediate neighborhood. In this region, as well as elsewhere, numerous small tubercles are found widely scattered, but chiefly along the course of the blood vessels and involving their walls. The miliary tubercles are most numerous in the meninges between the cerebellum and temporal lobes, and over the median surface of each hemisphere where there is more or less adhesion to the superior longitudinal fissure. Section shows dilatation of the lateral ventricles, which are filled with turbid fluid. The ependyma is slightly congested, both in the



lateral and fourth ventricles, and contains numerous very small tubercles.

"The histological examination showed marked congestion of the lungs, with hemorrhages into the alveoli and numerous miliary and conglomerate tubercles composed of small round cells, epithelioid cells and giant cells, the centers of some of which showed caseation and early organization. The bronchi also contained considerable blood. The spleen showed slight congestion of the blood vessels, and also miliary and conglomerate tubercles. The mesenteric lymph nodes showed slight congestion of the blood vessels and considerable proliferation of the endothelial cells of the lymph sinuses. Miliary and conglomerate tubercles were also present in the liver, and showed only slight caseation.. The blood vessels showed moderate congestion. The liver cells were negative. The kidneys showed marked parenchymatous degeneration of the epithelial cells, marked congestion of blood vessels, but no casts. At one point in the cortex a definite miliary tubercle was found. The brain showed marked infiltration with lymphoid cells, and proliferation of epithelioid cells throughout the meninges, especially well marked about the blood vessels. Only a few giant cells were present. There was considerable diffuse caseation, and some of the blood vessels showed marked proliferation of endothelium. Other sections revealed many miliary tubercles lying in the pia arachnoid coat, most of which consisted merely of round cells and epithelial cells with slight caseation. The histological diagnosis is as follows: Acute disseminated tuberculosis of the lung, spleen, liver and kidney, with early, acute tuberculous meningitis.

"Cover slips from the meninges stained for tubercle bacilli showed them present in large numbers. Cover slips and cultures from the meninges of the brain, heart's blood, spleen and lymph nodes gave negative results."

It appears from an examination of the literature of this subject that tubercular meningitis, complicated by a secondary infection, is either very rare or rarely recognized. Heiman found the tubercle bacillus and the diplococcus of pneumonia in the exudate of a case of meningitis. Lenhartz and Heubner found the tubercle bacillus and the meningococcus associated in three cases of cerebrospinal meningitis. Holdheim found the meningococcus in the spinal fluid, and at the autopsy the case was shown to be one of tuberculous meningitis. This appears to exhaust the literature on the subject. It may be mentioned that Stadelman is sceptical regarding the occurrence of the meningococcus and the tubercle bacillus together. Of course, it would be of interest if a difference could be recognized in the clinical pictures of cases of tuberculous

meningitis with mixed infection and those without it. In the brief published notes of the cases that we have collected the clinical history is either given not at all, or so incompletely that no conclusions can be drawn. In our own case the signs of spinal involvement were very slight, in this agreeing with the usual picture of tuberculous meningitis. Retraction of the head was not distinct; there was no rigidity of the spine, and the patient complained only moderately of pain in the limbs. Indeed, the predominant symptoms were those of severe septic infection, involving the cerebral hemispheres, and, therefore, the existence of malignant endocarditis was suspected when the case was first seen. When the symptoms of cerebral meningitis had become fully developed it was not understood why there was no leucocytosis. Kernig's sign was present, and our experience leads us to agree with Dieulafoy and Packard, that it is rare in tuberculous meningitis, but not so uncommon as to make its presence of especial significance.

In the study of this case there were two unfortunate omissions, both due to circumstances beyond our control. No inoculations were made with the first specimen of spinal fluid obtained, as animals, unfortunately, were not then available. No cultures were made from the meningeal exudate at the time of the autopsy. Dr. Hendrickson performed this autopsy under most unfavorable conditions in one of the suburbs of Philadelphia, and it was impossible to make cultures there, or to transfer the material in an aseptic condition to the laboratory. There appears, however, to be no reasonable doubt of the existence of both forms of infection. The finding of the tubercle bacillus in the smears and the histological picture proves conclusively that tuberculosis was present; and the fact that the same micro-organism was obtained in the spinal fluid on two occasions proves, I think, that it could not have been due to accidental contamination, especially as the cultures were made with great care and under very favorable conditions.

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## NEW YORK NEUROLOGICAL SOCIETY.

April 5, 1904.

The President, Dr. Pearce Bailey, in the Chair.

*A Case of Myasthenia Gravis.*—Dr. L. Pierce Clark presented this case, which, in many respects, was typical and not of particular interest except that the diagnosis was made upon the myasthenic reaction and exhaustibility of the muscles of the shoulder and pelvic girdle. The rapid exhaustibility of the muscles was more marked upon the left side. The paresis that was present was very persistent, and there was a remarkable variability regarding the intensity of the symptoms. The patient's expression was sleepy, and there was some ptosis. The patient had been bed-ridden for three months, and up to three weeks ago the condition had grown progressively worse. Then she was given thyroid, and two days after the parents noticed a great improvement. She then could walk down stairs and go about. She had the gluteal walk. In addition to the thyroid she was given thymus gland, but it had not been given long enough to make a report as to its effect in this case. She also had the condition known as "dead finger." Certain of her fingers were in this typical state, which was brought about by cold, exhaustion and depressing emotions. Two months ago she developed facial edema, especially marked in the lips, and which looked as if some insect had stung her; this interfered with her speech, but that slowly passed away with her other symptoms. There was also tongue atrophy, which was rather atypical. One of the greatest features was the periodic attacks of diarrhea, which was not dependent upon other than increased peristalsis. The most marked exhaustibility was in the deltoid and trapezius muscles. The voice showed the peculiar nasal tone of the exhaustibility in these cases. The quadriceps extensor was but little involved. She has had "dropping spells" in the streets. There was some difficulty in swallowing in the past. There was a weakened handgrasp on each side. The galvanic and faradic currents do not give good responses in these cases.

Dr. Graeme M. Hammond asked if an examination had been made of the muscular tissue.

Dr. Clark answered that it had not been made, but he thought that in time he would get the patient's consent. The blood examination had not yet been made. He said that Dr. Henry Hun, of Albany, had suggested that there might be some irritation about the thymus gland, which stirred it up into activity, giving rise to this condition. Dr. Clark did not think that this was so, because the thymus had been found to be normal in so many of these instances.

*Tubercular Meningitis—Tubercle of Inferior Olive.*—Dr. L. Pierce Clark presented this specimen, which was removed from a patient fourteen years old, who had been referred to him by Dr. F. M. Cook on February 28, 1904. Headaches had existed for the past four months, and staggering for the past three weeks, and vomiting on rising in the morning. The family history was negative aside from the father's dying from chronic alcoholism. The boy was bright, intelligent and well developed for his age, but appeared dull at the examination. There was an unequal and irregular weakening in the following cranial nerves of the right side, seventh, eighth, ninth, tenth and twelfth. Dr. Holden made an ocular examination and reported the discs normal. There was bilateral ataxia in all movements of the upper and lower extremities. The patient walked a little to the right. The gait was markedly cere-



bellar, knee-jerks were bilaterally exaggerated, true ankle clonus was present at times, but there was no Babinski at any examination. Big toe flexion was, however, slower on the left side. On March 1 the patient became delirious, would eat nothing, and showed the first signs of a marked rise in body temperature. There was slight persistent pain over the right mastoid. The patient was referred to the Roosevelt Hospital. During the next week he had a continuous temperature ranging between 101 and 102.5, and for the most part he was in a semi-delirious condition day and night, suggestive of basilar meningitis. The blood count showed no leucocytosis, and two lumbar punctures were completely sterile. The diagnosis of solitary tubercle in the lower right half of the fourth ventricle and a more or less diffuse basilar meningitis, was held as the most tenable pathologic lesion to explain the symptoms. As a last resort an operation in two stages was advised to relieve pressure, and possibly later to remove a portion of the tumor. The first step was performed by Dr. Brewer in nine minutes. The patient stood the operation well but died the following day.

The report of the brain tumor found at autopsy was as follows: There was marked opacity of the pia at the base, most pronounced in the region of the Sylvian fissure, the anterior and posterior perforated spaces and the crura. The opacity was composed of minute whitish pin-points, scattered unevenly, and most numerous in the areas indicated. In the position of the right inferior olive there was a mass about the size of a small hickory nut. Its contour was not perfectly regular, generally oval, consistence markedly increased, and it was ultimately blended with the surrounding nervous tissue.

Dr. Pearce Bailey asked if a section had been made of the tumor.

Dr. Clark replied that he had tried to keep the tumor in its external appearance, and, therefore, no sections had been made of it.

*Case of Brachial Birth Palsy.*—Dr. A. S. Taylor presented this patient. The boy was born after a dry labor, with instruments, and after a great deal of traction had been made. At birth the child was greatly asphyxiated, and it took some time for his recovery. Afterward he was found to have paralysis of the right arm. During the first few months of life there was no improvement in his condition, but during the next year or two there was a slight improvement in the muscles of the right upper extremity. There was a cessation in the improvement two or three years ago, and from the time that he had seen the child, about ten months ago, the condition was as follows: There was a marked external rotation and contracture at the wrist. The deltoid showed paralysis, and there was considerable atrophy of it with displacement downward of the head of the humerus, perhaps one-half to one inch. He said the muscular changes and the reaction would be referred to by Dr. Clark in his paper. In the paralyzed muscles there was the reaction of degeneration and a great deal of atrophy of them. There was a marked lack of development between the bones of the two sides. There were two and one-half cm. between the clavicles, and there was also a difference in the length of the humerus and bones of the forearms.

Operation was performed nine months ago. A very interesting thing was noticed in this instance. The anterior nerve division derived from the junction of the fifth and sixth cervical roots was torn away and displaced downward 2.5 cm., and was adherent to the front of the scalenus anticus by firm fibrous adhesions. The nerve was dissected free and its damaged ends removed. The junction of the fifth and sixth nerves and the posterior division derived from them was the seat of cicatricial enlargement and induration. The damaged tissue was excised, the freshened ends sutured, Cargyle membrane wrapped about the junction, and the wound closed as usual. The patient was placed in

a dressing which approximated the shoulders and neck, and this attitude was maintained for three weeks. Then the dressing was removed, and the patient was allowed freedom of his extremity, and was encouraged to move it as much as possible. From then on, under the supervision of Dr. Clark, he had received electricity and other treatment to develop the general condition of his muscles and made to use his muscles himself. For three months there had been more or less complete paralysis in all muscles supplied by the fifth and sixth cervical nerve roots. Now there was absolute return of nerve function. Before operation the hand had always been held in a markedly contracted position, and there had been ulnar deflection. The return in the musculo-spiral nerve function was most slow. The posterior dislocation of the humerus was very marked two months ago, and there was still a spontaneous rotation and reduction now going on.

*A Case of Obstetrical Palsy.*—Dr. Royal Whitman showed the case of a little girl, nine years old, who had a posterior rotation and displacement of the humerus. She was first seen last summer after she had been going for three months to various clinics. The humerus was rotated backwards, and there was ankylosis at the shoulder joint. The treatment adopted formed the subject of his paper. The first treatment consisted in efforts at replacement of the displaced bone. One extremity was much smaller than the other, which was also the case with the scapula. He showed the Section the amount of power that had been acquired by the deltoid. Supination was quite marked, but there was a limitation of flexion which was quite marked after the arm had been replaced. The patient was still under treatment, and Dr. Whitman demonstrated the method of over-distension, then outward rotation, then extension of the forearm, then supination, etc. It was, in fact, a demonstration of forcible manipulation which was absolutely necessary in these cases. The improvement in this patient had been very marked, and he believed that eventually there would be practically a recovery. He said that reposition of a dislocated shoulder would not cure the nerve lesion but would make it possible.

*A Case of Obstetrical Paralysis.*—Dr. Royal Whitman presented this woman. The arm of one side was about three and one-third inches shorter than the other. A diagram which he presented showed the condition as seen last summer. The patient now wore an apparatus during the day which kept the fingers in extension. There was great improvement in the condition of the fingers. This was an extreme case of obstetrical paralysis.

*A Case of Obstetrical Palsy.*—Dr. Royal Whitman showed this case, which was even more serious than the others. The original paralysis was on both sides in the arms. There was great difference between the two extremities. Until two months ago the patient could use only one hand to dress herself; under appropriate treatment there was noted an improvement.

*A Case of Obstetrical Paralysis.*—Dr. Royal Whitman presented this patient, which illustrated a form of posterior luxation and resistance to outward rotation. He said that if one expected to get good recovery from the employment of manipulation one must first overcome this resistance to normal motion.

*Brachial Birth Palsy and its Surgical Treatment.*—Drs. L. Pierce Clark and A. S. Taylor presented this communication, which was in the nature of an abstract, and was intended to cover only the principal facts brought out in a study of brachial birth palsy. A detailed account of the data would be published in full at a later date. While the clinical diagnosis was quite clear, its etiology was still mooted, although it was almost universally believed to be due to tension or compression of the

fifth and sixth cervical roots. Tension probably played much the greater rôle in the causation, although both factors had been proven causative agents, both in clinical and experimental work. As a rule there was given a history of force having been applied during the birth of the child. In some abnormal presentations had been present. In all the cases that had come to their knowledge there had been either a history of traction, or else this factor could not be excluded. The one and constant factor in its production, in their opinion, was traction produced by forcible depression of the shoulder while the head was bent to the opposite side and rotated; in this the cervical nerve roots were over-stretched, causing rupture of the nerve fibers over a considerable length of the nerve. The lesion was always in the fifth and sixth nerve roots, frequently also in the seventh, and occasionally in the eighth and first dorsal. From a brief review of the clinical picture of brachial birth palsy, its etiology and pathology, they said that one was impressed with the inadequacy of the present medical treatment. Surgical intervention naturally suggested itself, such as had been done in peripheral nerve injuries in general. Few secondary operations had been done upon the brachial plexus. During the past year they had operated upon four cases of brachial birth palsy. Details of the operation were given by Dr. Taylor in his discussion.

A relation of the four cases here followed. Fatal results occurred in the first and fourth cases, and this brought forth the question of the degree of shock involved in the division of large nerve trunks near their spinal origin. In the first case the length of the operation, and the fairly large loss of blood incident to it, obscured the problem. In the fourth case the operation was much shorter, the loss of blood slight, and the damage to the nerve much less. Still the result was practically the same, though not so rapid. The time consumed in all four operations was unquestionably too long; but this was due to (1) unexpected conditions demanding careful dissections; (2) the delicate manipulation necessary to the handling of nerve tissue; (3) lack of skilled assistants.

The following conclusions were presented:

1. The most important etiological factor in the production of brachial birth palsy is direct or indirect tension of the nerve trunks which caused rupture of nerve fibers.
2. An explanation of the persistence of the palsy is clearly based upon the pathological findings, which consist of a destruction of the axis cylinder by rupture of the nerve fibers and formation of an overgrowth of connective tissue between the torn nerve ends through which the nerve fibers cannot regenerate.
3. The nature of the lesion in all typical severe cases demand excision of the damaged nerves and suture of the good ends at the earliest possible moment, as in the treatment of peripheral nerve injuries elsewhere.
4. From the surgical viewpoint the desirable time for this interference is not yet determined. It would not, however, seem to be much later than two or three months after birth, as Kennedy advised.
5. The present medical treatment, consisting of an application of massage, electricity and systematized muscle movements, should follow the surgical interference.
6. The prevention of this serious lesion of the brachial plexus rested with the obstetrician, who should not stretch the child's neck in the process of delivery.

*Remarks on the Surgical Treatment of Obstetrical Palsy.*—Dr. Royal Whitman read this paper (see page 497).

Dr. Alfred S. Taylor opened the discussion by stating that the



question of prophylaxis was the most important in the consideration of this subject, and, in order to have an intelligent grasp on the prophylaxis, one should know more regarding the etiology of the conditions met with. The books state that pressure upon the clavicle during birth, hyperextension of the arm, pressure of the forceps, pressure of the fingers, etc., during birth will cause the condition. In the later literature it will be found that tension is the chief factor. If one could give an exact etiology one could make great advances in prophylaxis. For this purpose he had had the privilege of examining many newly-born infants to determine whether he could find an exact etiology. He experimented on eight children, using great force in pulling on the neck away from the brachial plexus, and no matter how hard he pulled there always seemed to be present a pad of muscular and fatty tissue in which the nerves could sink, and it seemed to him that any damage to the brachial plexus from the application of such a force was only theoretical. He took still-born children and placed them in attitudes assumed during the process of delivery; then pushing back the clavicle he could not get even enough pressure to cause any marked tension of the nerves. Placing the arm back of the child's head did not place the nerves on sufficient tension to cause any damage. While the arm was in that position the forearm was firmly grasped, and the fifth and sixth nerves then were sufficiently loose so that they could be moved. Anything which depressed the shoulder and increased the distance between the shoulder and the neck caused greater tension of those nerves. In the living child one could place the finger between the anterior scalenus muscle and the nerves, when they would feel like fiddle strings. This forcible depression of the shoulder first caused a tension of the fifth and sixth nerves, and it was demonstrated that they would give away in the same position in which they were found in other cases upon which he had operated. First the fifth and sixth nerves would give away, then further pulling would cause a similar damage to the seventh nerve. It seemed to him that his experiments proved distinctly that the etiology of this condition was purely that of tension, and, therefore, the question of prophylaxis should be considered. This consisted in exercising care *not* to pull the head away from the shoulder when the latter was fixed, or *not* to pull on the shoulder away from the head when the latter was fixed. The Resident of Sloan Maternity Hospital reported six cases of Erb's palsy. In one the presentation was a normal vertex with the delay after the head was born. With but slight pulling the shoulders were delivered, and following this there was a double paralysis of the arms, which soon disappeared. It was of the Erb type. In another case of Erb's palsy the hand had been placed under the neck, and after delivery of the head, had pried upon it, so producing the condition. In four cases there were breech presentations. He said that one could readily see that if the forceps were applied to the head and force exerted when the shoulders were fixed, one would produce exactly the same condition of affairs as was noted in his experiments. Again in three breech presentations, if one pulled upon the legs before the arms were delivered, there would be no traumatism to the brachial plexus; but when the arms were delivered, if the fingers were placed over the shoulders the tips would rest upon the nerve cords themselves, and if any tension was produced there would be a greater tension and a greater lesion produced than if force had been applied without the finger tips over the nerve cords. He believed that this was the reason there were so many more cases in breech than in vertex presentations. Again, it was a question with him whether the bringing the child's body over upon the abdomen of the mother, so producing extension of the neck, would not produce the lesion. He

had experimented upon this, and had found that the nerves were not very tense, not enough, certainly, to cause them such injuries. He said that a considerable degree of force was necessary to produce rupture of these nerves. He emphasized the fact that, in the delivery of every child, one should use a reasonable amount of caution to prevent these birth palsies.

Another interesting feature noticed when operating, was that not only was the nerve trunk itself damaged but also the deep cervical fascia, and this fascia was found adherent to the nerve trunks. He said that only that day he had seen a case at the Vanderbilt clinic which showed the same manner of traumatism, and the same results as those that had been reported. Frequently one saw instances of men who had fallen from a height and struck upon the head and shoulders, and the resulting paralysis could be likened to that occurring in birth palsies, with the paralysis and atrophy of certain muscles. Pressure upon the branches of the fifth and sixth nerves revealed, in such instances, a marked degree of tenderness. It was the stretching of these nerves that caused the lesion. He said that it was worthy of comment in the operation proposed to refer to the importance of the supra-scapular nerve. In his first two operations he did not appreciate the value of this nerve in the ultimate results. It was rather small in children, but it controlled largely external rotation of the humerus, and, therefore, one should use caution not to get it in line with the nerve sutures.

It seemed to him from the findings which were shown in the microphotographs, one could scarcely feel that a case of well-marked Erb's palsy could be cured without exsection of the nerve and suturing of it.

Dr. Whitman's paper, he said, treated of the reduction of the deformity before other measures were applied to the nerves for their regeneration. A reposition of the dislocated shoulder could not bring the muscular tissue into action if such tissue was not innervated.

Dr. B. Sachs said the subject was a most interesting one, as well as a very serious one, and that it was very necessary that we should have a clear understanding of many of the points raised. It should first be clearly understood that not all obstetrical palsies were cases of Erb's palsy, because he believed there were many obstetrical palsies that had nothing to do with the fifth and sixth cervical nerves; there were many instances in which traction upon the arm produced luxations and subluxations, and the pressure of the head of the humerus was at a point lower down than the fifth and sixth nerves. Therefore, he thought we should be careful in claiming that this method of operating was going to be a panacea, or one method of cure for obstetrical palsies. He said there was a natural mode of recovery in obstetrical palsies, even in those cases which appeared to be extremely severe from the time of birth. It was very important to watch these cases from the earliest period. He had been in a position to see obstetrical palsies from the day of birth, and had been able to follow them for years afterwards; he had had several children under observation. What he wished especially to emphasize was that if many cases were examined soon after birth there might be found a distinct subluxation of the head of the humerus, probably below the deltoid, which might possibly be identified with Erb's palsy; therefore, all cases of obstetrical palsies were not Erb's palsies. In one of his own cases a great deal had been accomplished by careful treatment by the early application of electricity, which was really another valuable form of gymnastics and the intelligent use of massage. That so many cases did well raised the question, he thought, as to what would be the proper time for operation, and this seemed to him to be a very serious matter for

consideration. If one operated early there was then a tremendous amount of shock. Could we expect more from operation than from the inherent recuperative powers of the nerves and the muscles themselves? He believed that if there was muscular atrophy and a great deal of wasting, especially about the shoulder, no amount of suturing of nerves or transplanting of their divided ends would bring about thoroughly satisfactory results. In one of the cases presented he could not satisfy himself that there was the least deltoid action; the child exhibited nothing akin to deltoid action. He said he did not wish to discourage the operation in the least, because he was ready to believe that, in carefully selected cases, they might be benefited by operation. But, he said he was much puzzled regarding the proper time for operation. When should this operation be undertaken? that was the question.

The remarks of Dr. Whitman, he thought, were quite apropos and entirely correct. Much of the trouble was due to secondary changes in the muscles and ligaments about the joint, and this must be overcome before anything much could be expected from the surgical interference. He believed the operation was a dangerous one; aside from the hemorrhage and its subsequent shock, one should bear in mind the proximity of the cervical portion of the spinal cord, which adds to the danger. He hoped the operation would prove beneficial, but because many cases did well without operation he was reluctant to resort to this surgical procedure at present when it was attended with such dangers.

Dr. Carmalt spoke of the cases that had been operated upon during the second, third and fourth week of life. In one case fifth and sixth nerve roots were torn from the spinal cord, and nothing could be done, and the child died one month later. At autopsy it was demonstrated that the fifth and sixth nerve roots were torn from the cord itself; they were shredded out. The traumatism at the time of operation did not seem to be very great. In the second case the point of division was not at the point referred to by Dr. Taylor. It was only when these nerves were under some tension that they were liable to rupture. A little over 60 pounds pressure was found to be necessary to break the nerve, and he said that few obstetricians used that amount of power. At the hospital it had been demonstrated that one case required 60 pounds, and four others required between 80 and 100 pounds pressure before rupture occurred. In the third case rupture of the nerve took place and was a transverse rupture. It was easily sutured, and the child did well for six months, but died of an enteritis. Operation was done during the third week of life. The child had apparently recovered the use of the arm, but whether the nerve would ever have fully regenerated was a disputed point. Case three died of sepsis, five days after operation. He did not think the question of shock in the older cases was of such importance as in early life. One manipulated the spinal in spina bifida, where the trunks were larger than the fifth and sixth cervicals, and the amount of traumatism was as great, if not greater, and yet no apparent shock resulted. Hemorrhage should not influence the shock greatly, because it could be readily controlled. He thought that the time to operate in these cases of birth palsies would be somewhere between the fourth and fifth month, and not so late as the second or third year.

Dr. Terriberry believed that any contribution to this subject would be greatly welcomed. So far the reports of operations for birth palsies showed it to be a very serious performance. He said that undoubtedly there were many cases which were not the result of stretching, and he had in mind a case in which the end of the forceps impinged upon the



fifth and sixth cervical roots, a very unusual thing. This case rapidly and completely recovered. This was a case of simple traumatism. He had had under observation a case of double palsy of the Erb type, which followed a breech presentation, and it was not in any way produced by traction. The trouble here was due to pressure upon the cervical roots. This child rapidly improved and both arms became about equal.

The question raised by Dr. Sachs he thought a very important one. If we are to operate, when should we operate? Everybody knew that these cases, if they improve, will improve slowly for a great length of time. The manipulations brought out by Dr. Whitman, he believed to be a great aid in the cure of these patients. He believed the whole question resolved itself now into the making of a correct diagnosis of the cause. A number of cases were undoubtedly due to pressure, traumatism being applied low down on the plexus. To operate on such cases, he believed, would be unwise. If by any possible means we could determine that the nerves were torn then the sooner the operation was done the better.

Dr. William M. Leszynsky said that considering the inherent power of the peripheral nerves to undergo regeneration, and in view of the fact that this was a dangerous procedure, he believed it would be wiser to wait for some time, keeping the arm in proper position, before we should resort to such a dangerous procedure. He said he would hesitate very much before he had any of his patients submitted to the operation, at any rate early in life.

Dr. B. Sachs said he did not think any one had a moral right to operate upon these children before several months had been allowed for their cure by other than operative means, because the operation was a dangerous one, and we should give a chance to the child to recover by the natural means.

Dr. George E. Brewer said he had had no experience with these cases, but he thought that enough pathological material had been presented to enable us, in a certain number of cases, to say positively that a rupture of the nerve or nerves had occurred, and in those cases which presented the Erb type it was obvious that no perfect result could be obtained unless some re-establishment of the nerve trunks was made. The question as to the gravity of the operation, he believed, should not be considered at the present time when only a few operations had been undertaken. He referred to the history of gall bladder operations, or appendicitis operations, etc., of their early failures and early high mortalities; yet, when the technique was improved and more experience had been gained in such cases, the mortality was greatly reduced, from 50 to 60 per cent. down as low as 2 per cent. Therefore, he did not think it right, in view of the few operations reported, to say that this operation was a particularly dangerous one. In one of Dr. Taylor's cases there was hyperpyrexia, the temperature going to 106, 107 and 108, and this in the presence of a sterile wound, he considered rather unusual. It resembled the temperature following thyroid operations. He said that unquestionably the operation could be performed with a much lower mortality when they had improved their technique, for children, as a rule, bore operations well. He said that Crile had demonstrated that by cocainizing the nerve trunks shock could be diminished tenfold. He had no doubt but that better results could be obtained after more operations had been done.

Regarding the time for operation in these cases he said that all who had seen nerve division and suture recognized the fact that the best results were obtained by operating as soon after the injury to the nerve took place as possible. Therefore, if surgical procedures were to be carried out they must be done relatively early. He believed that

complete atrophy of the muscular fibers precluded the possibility of operation.

Dr. Wisner M. Townsend said that the causes of death in these cases might be due to various causes, which may be eliminated in the future. There might be something in the method of operating which would reduce this high mortality if eliminated. If it could be determined that rupture of the nerves had actually occurred then he thought combining the method suggested by Dr. Terriberry and that of Dr. Whitman would be very advantageous.

Dr. Pearce Bailey said that it seemed to him that the question gathered itself up into the matter of the time of operation. Those cases that were operated upon early seemed to do well, but when they were operated upon late he questioned if anything was to be gained. A paralysis that had existed two years or more did not offer much hope from operation. We should bear in mind the fact that very often the case is beyond the scope of operation. Statistics show that when the nerve roots are severed from the spinal cord there is nothing to be hoped for from operation. Many cases recover late, and often one might operate upon a case that would have recovered without operation. He said that upon these two points the question hinged, and more cases should be reported before anything definite could be decided.

Dr. Thomas P. Prout said that if the nerves were involved in foreign tissue it was impossible to repair the condition except by surgical means. There certainly was a certain number of cases that should be turned over to the surgeon.

Dr. L. Pierce Clark, in speaking of the various types of palsies, said that often one could disclose the particular type by palpation; also by noting the muscles paralyzed, the atrophy, the deformed arm, etc., all would give definite information where the lesion lay. With regard to the spontaneous recovery occurring, he said everybody took advantage of that after a certain length of time. After two or three years when atrophy had occurred and the muscles had undergone marked contractures, deformity was produced. The exact time for operation in these cases he could not determine. But there was one thing certain, that they did not intend to do the operation under one year of age. He said he was glad to hear what Dr. Whitman had stated regarding replacing the humerus and overcoming the contractures, and he hoped such information would enable them to bring out better results in the future. He thought that overcoming these old contractures and replacing the head of the humerus was a necessary adjunct.

Dr. A. S. Taylor closed the discussion by stating that if he had known the exact condition of the first child operated upon the child would be living to-day. The operation was a prolonged one, and there was much hemorrhage. The question of hemorrhage should always be considered in the operative treatment in these cases. The second case that died was in a very bad condition, and had been in the hospital for months requiring constant attention for recurring attacks of dysentery. The dysentery followed the operation and materially hastened the child's death, so they could not blame the operation for the death in this instance. In selected cases he did not consider the operation a very dangerous one, as it seemed to be from the statistics. The question of hemorrhage could be readily disposed of, because there was really but two small blood vessels that were severed.

Dr. Abrahamson, in speaking of the cause of death in the two cases, said that we should bear in mind the relation of the cervical cord and the sympathetic system. Hyperpyrexia and thyroidism could be explained by the connection between that part of the cord and the sympathetic system.

## CHICAGO NEUROLOGICAL SOCIETY.

January 28, 1904.

The President, Dr. Sidney Kuh, in the Chair.

*A Case of Paraplegia.*—Dr. Charles H. Lodor presented this case. The patient was a male, forty-two years of age, and up to a year ago had been able-bodied and a hard manual laborer. He had no antecedent history bearing upon his condition and his heredity was good. His father was still living at the age of eighty-four. His mother died in child-birth. Two sisters were living. One sister died of supposed spinal trouble. A year ago he began having cramps, and thought he had rheumatism, as his legs were growing stiff. With this stiffness he noticed a very strong inclination to rise on his toes, and if walking fast, to grow rigid. The condition was more manifest when he became cold. For the past twelve to fourteen months the stiffness has been progressing, until now he has very little motor force in the legs, and is beginning to lose power in the arms. He has no disorder of sensation, and for one in his station, is unusually acute in distinguishing between heat and cold, and in locating the slightest touch anywhere on his body. His muscular sense was good. He has no visual disturbance. The patellar reflexes are much increased. A week ago he was left in his bathtub too long, and grew so rigid that he could not be bent, but was carried like a bar to his bed. In bringing him before the Society a slight jar stiffened him so that he had to be carried. The patient was unable to cross his legs. While the hands showed some loss of power, his grip was good. He has ankle clonus. There is not a particle of tremor or staggering. The eyes and all cranial nerves are normal. The peculiarity of the case is the rapidity of the development. There are no trophic symptoms, no pain and no paresthesia. He has had painful cramps, he says. He urinates without difficulty, and the sexual powers are present. The upper reflexes are not exaggerated. He has had no gastric symptoms and has had a good appetite all the time.

There is no heredity and no specific history. The two chief features are the rapid onset and the spasticity. He can be stood on his toes very readily, and only relaxes when fatigue comes on.

Dr. Lodor thought the case was one of true spastic paraplegia, a paraplegia from involvement of the motor tracts alone. Of the five cases of supposed spastic paraplegia which he had seen long enough to follow through prolonged periods, two were certainly mistakes in diagnosis, and the others are still under consideration. We have so few records of pure spastic paraplegia that have come to necropsy, that all such cases must be held under judgment until proved, as many cases have been shown to be multiple sclerosis, or some other form of disease. In the month this man had been under Dr. Lodor's observation, the symptoms had shown rapid advancement, and so far as could be ascertained, the condition of the patient had grown steadily worse for the past fourteen months, and at no time had there appeared any periods of remission in the progress of the disease or any periods of exacerbation.

Dr. Patrick said that there was another possibility in the case. He certainly should not wish to make a positive diagnosis; but for nearly two years he had been particularly interested in a certain form of degeneration; not lateral sclerosis as occurs in paresis and without it, but the subacute or more rapid forms, such as occur in the course of



pernicious anemia, etc., and which are now known to occur without anemia, or in the simple forms of the same. He thought he had seen eight or ten cases in the past year and a half; cases of compound degeneration; cases that ran their course in one to three years. He could not say of his own cases that they ran their course in three years, for he had not followed them, except the fatal cases which were not of so long duration. But similar cases have been known to run as long as four years. The lesion in these cases is a compound lateral and posterior degeneration, more rapid than the extremely chronic cases like tabes and multiple sclerosis, and not so rapid as acute myelitis and inflammatory lesions, but sufficiently rapid to show disintegration of the nerve fibers in parts of the affected areas at necropsy. The cases vary exceedingly in symptomatology. The degeneration in some seems to begin in the lateral columns, and in others in the posterior columns, so that in the beginning the case may simulate tabes or spastic paraplegia.

Dr. Lodor said that no case had been recorded that did not show some sensory disturbance early, or concomitant with the motor symptoms, and that he did not think that sensory symptoms were discovered at first objectively.

Dr. Patrick said the possibility ought to be mentioned because the case was unusual, and we must not bind ourselves too closely to types. It is only two years that he had been acquainted with these cases as he should be, and he now recognized cases that he had seen before and which puzzled him, and in which he had not made a diagnosis because there was no pernicious anemia present.

Because the picture is not complete we should not be afraid to make the diagnosis. He would not say the above is true of Dr. Lodor's case.

Dr. Lodor said he had toxemia in mind. There was no blood change. The blood count was high. The patient's general health had been good all the time until lately, when he had been restricted in his exercises. Dr. Lodor held to the opinion that it was one of the few rare cases of lateral sclerosis, although the rapid development and perhaps the patient's age were both against the diagnosis.

Dr. Patrick said there were several interesting phases in this case reported aside from the functional complication, noticeably, the almost bilateral character of the complaint from the first. Bilateral tabes is quite unusual.

In discussing the Argyll-Robertson pupil, Dr. Patrick said that he thought that neurologists used this term as synonymous with reflex iridoplegia, and that no particular attention was paid to the size of the pupil, while ophthalmologists always meant by the above term, a pin point or small pupil.

*A Case of Superior Tabes.*—This was exhibited by Dr. Patrick. The patient, a man, was thirty-eight years of age. He has been married four years. The marriage has been childless, although the wife miscarried once at two months. Seventeen years ago he was exposed much to the wet and cold. Twenty years ago he had a urethral discharge, though no sores. His habits have been good regarding alcohol and tobacco. In 1892 he received a severe electric shock, was unconscious about two hours, and for two months he was generally disabled. He fell 16 to 18 feet, which perhaps accounted for the unconsciousness, aside from the shock. In 1895 he seemed to fail generally in health, but recovered in general health in 1900. At the same time vision began to fail, and in three months this impairment had progressed to quantitative vision for both eyes. Within three months the sight had become

so bad that he could just count fingers. That was a year ago in July. He went to Highland Park to do some work on a telephone, having completed which he started home and became suddenly blind. He sat down on the sidewalk until some one came along to take him home.

Dr. Patrick said when he looked over the statement Dr. Heck had kindly prepared, several things seemed to suggest functional disease, and this sudden loss of vision might be construed as an intimation of the same sort of trouble. That was in 1902. It lasted from four to six weeks.

The patient had extreme pain in both sides of the entire face; so severe he could not sleep at night. He was told it was neuralgia from bad teeth, and had all taken out—twenty-two. The pain left gradually. The eyesight was good with glasses until last July. At the same time he noticed a little place on the forehead where the skin felt stiff and not natural. When stuck with a pin he could not feel it. This gradually spread along the left side, around the eye, corner of mouth and down over side of chin, and the face is now completely anesthetic from the crown down around the chin. The advance of anesthesia and analgesia over the lips and chin had occupied six weeks. He had some little difficulty in swallowing, and occasionally choked. His description is suggestive of laryngeal crisis, caused by irritation of the food.

Another peculiar symptom is his extreme sensitiveness to a bath; no aversion, but an extreme sensitiveness of the skin, which appeared about last July. He can tell the difference between hot and cold water on his face, but it is only the body and legs which are so sensitive to water.

Dr. Patrick said, in passing, that he had known several cases of tabes where there was a great hyperesthesia to cold water.

The patient had great sensitiveness to light. Dr. Patrick had seen once or twice that early in the failure of vision that there seemed to be hypersensitiveness to light.

Dr. Patrick's patient has bilateral analgesia in the area of fifth nerve; good co-ordination. The patellar reflexes present, the gait normal. The supraorbital reflex is absent on each side. The eye muscles are normal, the pupils somewhat irregular. He has a typical Argyll-Robertson pupil. He may have hippus, but it is question whether it is not connected more or less with an involuntary accommodation. In looking at a distance, he looks at one thing and another, and it may affect the pupil. It was thought at one examination he had an iridonlegic pupillary contraction, but that was also due to accommodation. The tongue is tremulous. Articulation and deglutition are good. Anesthesia, however, involves the tongue; the pharynx was not examined. There is analgesia in the oral cavity, but not anesthesia. The patient says the inside of the mouth feels like wool or sponge, and food does not feel natural. His taste varies. Occasionally he has difficulty in swallowing.

# Periscope

## MISCELLANY

THE PREVAILING CONCEPTION OF DEGENERACY AND DEGENERATE, WITH A PLEA FOR INTRODUCING THE SUPPLEMENTARY TERMS DEVIATION AND DEVIATE. G. L. Walton (Boston Med. and Surg. Journ., Vol. CL, Jan. 21, 1904).

The term degenerate is now of interest not only to the anthropologist but to the medical and general public, and the time has come to question whether it is adequate with no synonym, except for its worst significance, to meet all requirements of scientific classification and discussion, to say nothing of general use. The term superior degenerate has led to confusion; applied in its academic sense only to individuals whose higher qualities are affected, the tendency has crept in to include under it individuals with minor peculiarities whether physical or mental. The standard definitions of degeneration, in its anthropological sense, imply reduction to a lower type, especially with respect to moral qualities; its synonyms are limited to such words as depravity, demoralization, prostitution, vitiation, blight, rottenness and pollution. But medically speaking, degeneration is defined as a condition in which there is marked deviation from the average normal, and its stigmata include such insignificant deviations as difference in color of the two eyes. It does not follow because many degenerates show many deviations from the average normal, that every such deviation is degenerate; when we include all deviations under this term we have drifted into the unscientific position of recording *facts* in such a way as to involve an *opinion*. Even if it should eventually be proved (which is highly improbable) that every deviation means degeneration, nothing would have been lost by following a logical plan in establishing that proposition. According to the present nomenclature, congenital absence of vermiform appendix would be classed as degenerative if some individual should be born so happily constituted. The etiology of so-called degenerative stigmata has been made to include syphilis, alcoholism, deprivation and allied conditions in the ancestry (Nordau), and again, toxic infections affecting the developing embryo (Vaschide and Vurpas), signs of atavism and evolutionary sports, shown, *e.g.*, by unusual development of Broca's convolution in an individual possessing unusual command of language (Lombroso). It would seem that the downward is not the only direction in which deviation may be found. Even Lombroso, in classifying genius as a degenerative psychosis, does not claim that every genius is, as a whole, necessarily deteriorate; in fact, he warns against the exaggeration of deducing degeneration from single facts, and yet he has no other name for the most trivial of these facts than signs of degeneration. If one term must be chosen to include all varieties of deviation, with their varied etiology, it is unfortunate that a name should be chosen which has of necessity a sinister significance, and is by no means uniformly appropriate. In the light of such considerations the use of the terms "deviation" and "deviate" will not only serve accurately to classify the phenomena, but may even contribute toward a better understanding of the complex conditions with which we are concerned. It would certainly answer every purpose, for example, to substitute *deviation* in the statistics which state that 4 per cent. of normal individuals have five or more signs of degeneration, as compared with 27.4 per cent. of delinquents. The use of the word delinquent in these statistics shows that a mild designation may be used to cover a severe type, for delinquent is here made to



include the most hardened criminal, and yet in the same statistics the word degeneration is obliged to include the most insignificant signs of deviation. It is not intended, however, to supplant the word degeneration, but to limit its application to stigmata, to individuals, to families, or to races showing unquestioned downward tendency, and it is especially intended to replace, as far as practicable, that self-contradictory and unnecessarily opprobrious designation, superior degenerate.

AUTHOR'S ABSTRACT.

#### THE PROBLEM OF THE ATYPICAL CHILD.

Under this title, Dr. Maximilian P. E. Groszmann read a paper (Jan. 28) at the regular meeting of the German "Gesellig-wissenschaftlichen Verein" of New York. The reading of the paper was followed by an interesting discussion. Dr. Groszmann said that he had suggested the use of the term "atypical" for a certain class of children so as to distinguish them from the defectives, such as idiots, feeble-minded, blind, deaf-and-dumb, etc. While some provisions exist for the handling of the defective classes, little or nothing has been done for the atypical children. There may be distinguished three groups of these. The first group is formed by what may be styled the "submerged classes," those who have for centuries been lagging behind the advance of civilization, and are really outside of it. They represent a primitive type of development. Their number is augmented by those children of originally normal conditions, who, on account of some pathological or other reason, have come to a stop in their natural progress. Especially the period of pubescence and adolescence is fraught with dangers: if children of this age are not properly handled, they may lose their bearings, and their rational development may be checked in the bud. While this first group is composed of children whose development may be said to be arrested, the other two groups which the lecturer mentioned, represent merely a retarded or interrupted development. The second group consists of those where bodily causes, derangements of the digestive apparatus, difficulties of sense perception, etc., have thrown the child out of gear. Dr. Groszmann laid much stress upon the evil effects of adenoid vegetations. He said that the observable mental and moral difficulties can largely be cured by proper medical treatment, in addition to educational measures. There are also many children whose rate of mental growth is merely slow, but who really possess much power.

There is a third class, namely, that of children who are afflicted with disorders of the nervous system. Neurotic and neurasthenic conditions are very characteristic of modern life, with its rush, excitement and restlessness. The doctor spoke of the overstimulation, in school and home, under which so many children suffer; of the troubles of the adolescent girl whose nerves become shattered by overstrain in study at this critical period; of youthful hysteria; perverse tendencies; morbid conditions of fear; disturbances of sleep, appetite and concentration; contrary activities; disturbances in the motor sphere, such as twitchings, jerkings, habit tic, etc.

Most of these children must be taken out of the ordinary school. For some it will suffice to establish special classes, such as are being instituted at present in some of our public schools. Others need an entire change of environment, proper hygienic conditions and exercise; a general tonic regimen, physical and mental, and a very rational method of instruction, including manual and physical training, and very much individualizing. Special schools will have to be established for their benefit, and a constant cooperation of physician and educator is necessary.

Dr. Groszmann, in closing, called attention to the enormous social importance of the problem he broached. He asked: "What is the world suffering from? Why is there so much trouble? There are stupidity and

ignorance in our way, to be sure. But these can be overcome by wisdom and discretion. The mere herd can be led—but by whom is it to be led? That is the question. The ordinary, typical people keep the world in equilibrium; they are the steady, conservative element. But these who are just below the line—not stupid, but not quite rational—are the real ‘dead-weight,’ just because they can manage affairs, in a measure, but cannot themselves be managed by reason. And those who are bright and talented, but unbalanced, out of gear, unsteady, one-sidedly energetic, erratic, neuropathic, etc., they make the world go, they are often the self-elected leaders of the unthinking masses, but frequently enough they lead to destruction. They disturb the equilibrium, they produce morbid unrest and unhappiness. Sometimes they stir up forces that work for good, but equally often they do incalculable mischief. Our social, political, religious and ethical life is constantly affected by them and in danger from them.”

“Here is a message of warning,” said the doctor. “This is the reason why the problem of the atypical child that is allowed to grow up into an atypical, under-developed or neuropathic man or woman, is such a serious one.”

THE TREATMENT OF NEURASTHENIA. Howell T. Pershing (Medical News, April 2, 1904).

The methods are tabulated as follows: I. Remedies whose chief effect is to prevent the loss of nervous energy. (A) Prevention of emotional disturbances: (1) By reassurance and favorable suggestion, (2) by forming the habit of muscular relaxation and repose. (B) Limitation of work. (C) Prevention of toxic conditions. (D) Removal of peripheral irritations. (E) Reduction of cortical irritability by medicines. (F) Sleep. II. Remedies whose chief effect is to increase the income of nervous energy. (A) Food. (B) Medicine. III. Remedies used empirically, whose action is complex or obscure: Electricity, massage, hydrotherapy, exercise, change of climate. W. B. NOYES.

CASE OF BRAIN TUMOR INVOLVING THE SUPERIOR PARIETAL CONVOLUTION. Theodore Diller (The Amer. Jour. of the Med. Sciences, Mar., 1904).

A man of good habits, age 56 years, developed neurasthenic symptoms, and one year later had a first attack of Jacksonian epilepsy. The attack began as a painful cramp in the left great toe; moving up the leg, it finally involved all the muscles of that leg and that side of the trunk. The arm and face were not involved, and the patient was conscious throughout the attacks. Following the convulsion there was slight weakness in the left arm and leg. These attacks came on about every month for twenty-six months, when he had a very severe attack, which was preceded by headache, and which left him dull and restless for thirty-six hours. An eye examination at this time showed an optic neuritis of the right eye and an appearance suggestive of that condition in the left eye. There is some mental deterioration observed by members of the family. Slight paresis is present in the left arm and leg. Muscular sense is impaired in the left hand, but stereognostic perception is normal in hands and feet. No ocular symptoms. Eyesight is good. Sensation is normal. Knee jerk is increased on the left side. There is a long protrusion in the median line of the skull five inches in front of theinion, which is tender on percussion. A diagnosis of brain tumor was made and operation decided upon. At the protuberance the bone was found soft and diseased. The dura was healthy, but beneath it at this point was a large tumor mass. There was so much hemorrhage that the patient collapsed and the operation was stopped. Six days later another attempt to remove the tumor was stopped for the same reason. After the operation his mental condition was much

improved and the epileptic attacks became less frequent. He lived very comfortably for two years, then had two severe convulsions and died. At autopsy a large spindle-celled sarcoma was found on the right side of the brain, extending from the Rolandic fissure back to the parieto-occipital fissure. On the convexity of the brain it extended down to the upper portion of the inferior parietal convolution. On the mesial aspect of the brain it extended down to the upper third of the gyrus fornicatus. It therefore involved the superior parietal, paracentral and quadrate convolutions chiefly and the inferior parietal and gyrus fornicatus partially. The tumor was clearly defined from the brain substance at all points, and had it been operated on earlier it could probably have been successfully removed.

The noteworthy features of the case were the absence of vomiting and vertigo; the fact that the headache was severe once only, in the attack just before the operation; and that the optic neuritis probably subsided, since no appreciable defect of vision was present at any time after it was discovered.

C. D. CAMP (Philadelphia).

NEUROSES OF THE STATUS LYMPHATICUS. A. P. Ohlmacher (Journal of Amer. Med. Assn., Feb., 1904).

Status lymphaticus is a constitutional disorder characterized by a persistence or hyperplasia of the thymus gland, general lymphadenoid hyperplasia, frequently associated with cardiac and arterial hypoplasia, and evidences of rickets. Sudden death occurs in this disorder, as a sinking spell, with or without convulsions, sometimes during a minor operation. By some writers this is termed an abruptly fatal neurosis ("Nervenschlag" of the German authors). The convulsive phenomena resemble the abrupt assault of major epilepsy or infantile eclampsia. Laryngismus stridulus and infantile tetany are closely allied with eclampsia, are associated with the rachitic dyscrasia, and on autopsy many of the characteristics of status lymphaticus are found. The writer associates idiopathic major epilepsy with the lymphatic state. Death occurs as a reflex cardiac paralysis, the increased susceptibility of the heart to various forms of irritation being a part of lowered vital resistance. Escherich considers a latent irritability of the nervous system to be characteristic of the lymphatic constitution, causing reactions in the form of spasmodic conditions in various parts of the body in response to trifling stimuli. He would regard the constitutional disorder as the expression of an incomplete or perverted metabolism, that is, as a dyscrasia or chronic intoxication, comparable with Basedow's disease or myxedema.

In lymphatic epileptics, the writer believes a periodic increase of intracranial pressure is present, acting on the exterior or interior of the brain.

This manifests itself as a tendency to edema, characteristic of the status lymphaticus, and is a directly provocative factor of such neuroses as spasm of the glottis, tetany, infantile eclampsia, epilepsy, and the various forms of sudden death incidental to the lymphatic state. At autopsy persistent thymus gland, enlarged intestinal follicles, and the enlarged spleen are not found ordinarily in epileptics over 30 years of age, or those who have died of prolonged dementia, or exhaustion, or certain acute infections, but only in those who die suddenly.

The narrow arteries and relatively small heart are common as persistent features even in advanced age.

NOVES (New York).

HEMIPLEGIA IN TYPHOID FEVER. L. Stein (Pest. Med.-Chir. Presse, 1904, Jan. 10, p. 44).

Paralysis is a rare complication of typhoid fever. A man, aged 20, was admitted to hospital on Oct. 14. He had been ill since Oct. 9, the



symptoms being weakness, diarrhea, and anorexia. There were tenderness and gurgling over the right iliac fossa, splenic enlargement, rose spots, and pyrexia, which ranged between  $103.1^{\circ}$  and  $104^{\circ}$ . He became more and more apathetic and drowsy and lost control of the sphincters. Lysis began on Oct. 25, and on Oct. 30 the temperature was normal. On Oct. 22 the left limbs remained in any position they were placed, though on the right side there was jactitation. Some days later the left leg and arm were paralyzed, the only muscles which acted were the flexors and adductors of the thigh and leg. Thus the thigh could be adducted and the knee slightly flexed, but the original position could not be regained voluntarily. The patellar reflex on the left side was exaggerated. Sensibility—tactile and thermic—was unimpaired. The left naso-labial furrow was obliterated, the left angle of the mouth was on a lower level than the right, and the left ala nasi was motionless. But the muscles innervated by the temporo-facial division were unaffected. There was no marked muscular atrophy. The association of paralysis of the lower branches of the facial nerve with hemiplegia, the exaggerated reflexes, and the absence of atrophy were practically conclusive of cerebral affection. The patient, who had previously been intelligent, had fits of ceaseless laughter, could not solve correctly the simplest arithmetical problem, and appeared silly and demented.

JELLIFFE.

INFLUENCE OF TYPHOID FEVER ON THE NERVOUS SYSTEM. C. C. Hersman (N. Y. Med. Journal, March 26, 1904).

The poison of typhoid fever attacks the nervous system first, as evidenced by the prodromal aches and pains, that of the head being severest, sometimes uncontrollably so. The optic nerve is usually quite sensitive, photophobia being a frequent symptom. The cardiac ganglion and nerve supply of the heart is frequently affected by the poison. The psychoses are the initial delirium, which may be an early symptom, the febrile delirium which comes in the second or third week, which amounts to a confused condition of the mind, a melancholia, or a violent motor excitement, the low, muttering delirium so common in fatal typhoid. Convalescence may be disturbed by a delirium which is due to the exhausted condition. Mania and melancholia are often seen in the inherited, neurotic type. Meningitis is a grave complication. In a case of the writer's, headache, symptoms of meningitis and a paralysis of the left side were the pathological sequence. The prognosis of typhoid meningitis is 80 per cent. mortality. Among the neuroses are epilepsy, hysteria, tabes, multiple sclerosis, typhoid spine, and, more rarely, infantile spinal paralysis, paralysis agitans, myotonia, chorea, tetany, and various types of anesthesia, hyperesthesia, neuralgia, besides trophic and vasomotor neuroses. Insanity is far from common, and is not hopeless if the heredity is good.

W. B. NOYES.

THE PUPIL AFTER DEATH. A. Placzek (Virchow's Archiv, Vol. 173, No. 1).

The development of rigor mortis follows a certain definite law. Three to six hours after death it affects the neck muscles and then descends to the trunk, arms and legs. After three to four days it disappears in the same order. The heart is involved somewhat earlier than the other muscles. Observations on smooth muscle-fibers are very scant, so that Placzek made a systematic study of the size of the pupils at various times after death to ascertain if the muscles of the iris follow the general law. Cats were selected, since their prominent iris permits of very accurate measurement. In the first two hours after death the pupils begin to contract; this goes on until, after six to twenty-four hours, only a narrow slit remains. After twenty-four to forty-eight hours relaxation is again complete and no further excursions are then noticed. There may be individual variations; thus the process need not be syn-

chronous on both eyes of the same animal; the secondary dilatation may be interrupted for a short time by a secondary contraction or the secondary dilatation need not occur at all. The pupil varies much in shape when completely contracted; it frequently is very irregular in outline. In man, rigor mortis of the iris begins in the second half of the day of death or the first half of the following day, hence is independent of the contractions of the skeletal muscles. Differences on both eyes are also observed very frequently. To explain the contraction, it must be assumed that the tonus of the dilator pupillæ is lost much sooner than that of the constrictor pupillæ. The author then examined a number of pupils that were altered in size by drugs shortly before death. Eserin injected subcutaneously was followed by myosis; shortly before death the pupils dilated and after death behaved as stated above. Applied locally, there was contraction, followed by maximum dilatation in the death agony; the post-mortal changes were the same as before. Exactly the same phenomena were observed after morphine injections and after division of the sympathetic nerve. The post-mortal variations in size were not affected by mydriatics instilled before death. The pupils did not dilate until just before death, and then contracted and dilated as before. When a drug which acts directly upon the muscles of the iris (adrenalin) was employed, the dilation persisted much longer after death and was followed by only a slight contraction.

JELLIFFE

DIAGNOSTIC VALUE OF THE PLANTAR REFLEX. Stanley Barnes (Review of Neurology and Psychiatry, May, 1904).

From an examination of the Babinski sign in 2,500 patients Barnes contributes an important study. Particular attention has been paid to the methods of examination, and he prefers to speak of extensor and flexor reflexes, the former representing the true Babinski type. His conclusions are as follows: (1) In adults, an extensor response (Babinski's sign) never occurs in health; it is always indicative of organic disease. The pyramidal system need not be so injured as to show post-mortem lesions. An extensor response may be produced in any condition which greatly raises intracranial pressure, even if that condition does not cause a demonstrable lesion of the pyramidal system. For instance, an extensor response may occur in hydrocephalus, meningitis, cerebral tumor, etc.; in such cases the extensor response usually occurs in comatose or semicomatose states. An extensor response also occurs in convulsive conditions of organic origin, e. g., in epilepsy, uremia, infantile convulsions, strychnine poisoning, etc. An extensor response never occurs in hysteria and allied conditions unless some organic disease is also present. (2) A flexor response is the normal plantar reflex of the adult; it may also occur in pyramidal disease: (a) in acute conditions if only a small amount of the pyramidal influx is removed by an organic cause; or (b) in chronic cases, even when a large amount of the pyramidal influx is removed. (3) Under certain conditions it is sometimes possible to obtain in the extended position of a patient an extensor response, and in another position (Collier's) a flexor response from the same foot; this may be termed the position of pyramidal equilibrium. (4) The position of pyramidal equilibrium is lower in the scale of pyramidal disease in recent and acute cases than in cases where the disease is of long standing or very chronic origin. (5) There is a constant tendency in the adult for an extensor response to give way to a flexor response; the more chronic the case and the less severe the pyramidal lesion the more rapidly will a flexor response be reestablished, even though the limb remain severely paralyzed and contractured. (6) The infantile response of children under the age of two years is dependent upon the immaturity of the pyramidal tracts; it resembles the response of pyra-

midal equilibrium rather than that of a full spasticity. (7) The extensor response comes on *simultaneously* with the incidence of pyramidal disease. The reflex is not abolished by total transverse section of the cord, and appears to be less affected than any other reflex by "nerve shock." (8) The plantar reflex may be absent in health when the foot is cold or damp; it is also frequently absent in hysteria, multiple neuritis, infantile paralysis affecting the leg, and in severe tabes. JELLIFFE.

TRAUMA AND DISEASES OF THE NERVOUS SYSTEM. Judson S. Busy (Brit. Med. Jour., April 30, 1904).

The author takes the position that when patients refer various nervous troubles to a precedent traumatism they are more often justified than the medical profession realizes. In discussing the effects of cerebral concussion, after noticing the more immediate and gross changes that may be produced, such as hemorrhage, inflammatory conditions, or laceration of brain substance, he considers the less conspicuous symptoms, and changes which may develop later: the traumatic neuroses, insanity, cerebral tumor, and late apoplexy. Putting aside those cases of traumatic neurosis that are malingering or hysterical, there remains a class of cases which clinically resembles non-traumatic neurasthenia. In later stages these "bruised brain" cases can be diagnosed by their dullness and apathy; mental action instead of being acute and introspective, is carried on with difficulty; and insomnia is less common; in fact, there is often a tendency to drowsiness and stupor. Actual insanity may develop after head injuries, even though there is no hereditary predisposition. Tumors of the brain may sometimes owe their origin to nutritive changes produced by concussion. In some cases, weeks after a blow on the head the patient may have an apoplectic attack, hemorrhage from a ruptured artery, without having previously had any sign of arterial disease, and where syphilis, alcoholism or nephritis could be excluded from the case. Concussion of the spinal cord may cause immediate symptoms, or they may be delayed for several weeks. The more severe traumatism usually produce the more immediate symptoms. A subacute myelitis may not give symptoms until a month after the accident. The author suggests that other spinal cord diseases more or less degenerative in character, such as tabes, multiple sclerosis and chronic myelitis, may follow trauma, though no doubt in most cases the traumatism only co-operates with other causes, especially syphilis. Many cases of progressive muscular atrophy apparently originate from severe strain or other injury to a limb. The muscular atrophy depends on a damaged nutrition of the motor cells, this derangement being the effect of morbid impulses from the irritated nerves of the injured joint. CAMP.

JACKSONIAN EPILEPSY: OPERATION, RELIEF. H. Muir Evans (British Medical Journal, May, 4, 1904).

This case is evidently one of those early cases of epilepsy described by Gowers as originating in the first two years of life, and associated with a cortical lesion. The patient was 17 months old when she had the first convulsion. There was no history of injury or previous illness. The child was well developed and apparently healthy. The first convulsion involved only the left side, lasted six hours, and was followed by a temporary paralysis of the left side for fourteen days. There was a period of quiescence of eight months, then a recurrence of the attacks. The fits at this time were of two kinds, one a sudden dropping forward of the head, and the other a severe convulsive seizure involving the left side of the face and the left arm and leg. Between these attacks the child constantly made rapid sucking movements of the tongue, and there was paresis of the left side of the face, not affecting the eye.



There was no optic neuritis. Medical treatment, sodium bromide gr. XV t.i.d, gave no relief. The skull was trephined so as to expose the ascending frontal convolution at its junction with the third frontal. The exposed surface of the brain looked as if a mucous polyp was flattened on it. This was incised and about three drachms of clear fluid escaped. There were no signs of a blood clot. The wound was closed without drainage. No attacks occurred after the operation, which was a complete success.

CARL D. CAMP (Philadelphia).

**GASTRIC DILATATION AND TETANY.** John H. Cunningham, Jr. (*Annals of Surgery*, April, 1904).

The author reports a case which is instructive. The individual was a male, unmarried, 28 years of age, a collector by occupation. His previous history and his habits were negative. His father died with heart disease and his mother of cancer. The present attack dated from 1896, when he had attacks of vomiting of two weeks' duration, which occurred without known cause. During the attacks there was constant dull pain over the epigastrium. These attacks occurred to the number of twelve to twenty each year. They resulted in profound emaciation and in preventing him from carrying on his work. Early in 1897 he noticed that his eyes began to fail, and although glasses were prescribed he found that they did not entirely cure the disorder, although they helped it markedly. He very rapidly became dependent upon them, however, finding that unless he wore them in the intervals between his attack he became immediately nauseated. He went the round of a large number of hospitals, having been seen by a number of prominent physicians. In 1902 he began to vomit material which was stringy with blood. An effort was made to pass a stomach tube upon him, but this was abandoned because of its producing contractions of the fingers. The physical examinations were those usually ascribed to chronic dyspeptics. There was a slight trace of albumin in the urine. During examination the patient vomited 32 ounces, which contained the customary evidences of decomposition. Immediately after vomiting he had a typical attack of tetany which was bilateral. The thumbs were drawn in, the wrists flexed, arms flexed at elbows and rotated inward. The flexion of the lower extremity was strong. The lips were fixed and the patient was unable to speak. The patient suffered at the wrists, said he was conscious of what had happened, but was mentally confused. There was free HCl and no lactic acid. Five days after the first attack of tetany there was a second, but a milder attack. Two days later an attempt to pass a stomach tube resulted in tetany. He gradually improved under medical treatment, and refusing operation, left the hospital. Nine months later he was taken to the Emergency Hospital in profound tetanic convulsions, which lasted four days. Again he refused operation, having recovered under medical care. A posterior gastro-jejunosotomy was performed at a later date, it having been found that, grossly at any rate, the viscera were in a normal condition save for a thickening at the pylorus. The recovery from the operation was uneventful. Three months after the operation he had gained twenty pounds, and was able to eat everything, including pastry. The symptom known as gastric tetany is to be differentiated from the tetanic spasms in gastro-enteritis, pregnancy, thyroidectomy, the puerperal state and many other conditions, such as epilepsy, hysteria, etc. Kussmaul in 1869 described this form: It is usually associated with benign pyloric stenosis, or it may be the result of pressure from without. The attack which is typically ushered in by a pricking of the hands usually has a direct relation to vomiting. The contractions appear in the hands and are usually characterized by flexions, although the extremities are sometimes extended. After the attack

great pain is experienced in the parts involved. As to the etiology but little is known, Kussmaul's theory being that the inspissated blood, which he believes results from inability of the stomach to absorb moisture, affects the motor centers of the nervous system. Others explain the tetanic spasm as being reflex action produced by a stimulation of the sensory nerves of the stomach. Devic believes that auto-intoxication plays a very important part in the etiology, and he has succeeded in isolating a substance closely allied to the syntonin, which, when injected into the circulation of animals, produces convulsions. The prognosis of this form of tetany is very high, recovery without operation being almost unknown. It is probably over 80 per cent. Cases treated surgically show a mortality of  $37\frac{5}{8}$  per cent. JELLIFFE.

#### PERMANENT CLOSURE OF THE JAW RESULTING FROM INFANTILE PARALYSIS.

W. E. Meads, (British Med. Jour., June 18, 1904).

The patient was first seen by Dr. Meads for the relief of an acute toothache. On examination her lower jaw was found to be immovably fixed as a result of paralysis which came on when she was 18 months old. She had whooping cough at that time and was given a hot bath. This was followed by two fits, and she became paralyzed in the right side of the face and the right leg from the knee down. There was no trismus of the muscles and the lower jaw could be moved about 1-30 inch, though for all practical purposes it was immovably fixed. The sense of hearing and the sense of touch were perfect on the right side. She possessed a complete set of teeth, which were interlocked and in very bad condition. The crowns of several teeth were broken off and through this opening she fed herself on liquid and semi-solid food. The lower jaw presented a remarkable example of non-development from non-use, especially on the right side. The patient's health and comfort were benefited by having all the teeth extracted.

C. D. CAMP (Philadelphia).

#### CLINICAL REPORT OF THREE CASES OF INJURY TO THE LOWER SPINAL CORD AND CAUDA EQUINA. T. H. Weisenberg (Amer. Jour. of the Med. Sciences, May, 1904).

Dr. Weisenberg reports three exceedingly interesting cases having an important bearing on the localization of the reflex centers in the spinal cord, and the course of some of the sensory fibers. The first case, a male, 35 years old, after a severe traumatism to the back had great pain, complete paraplegia, loss of bladder and rectal control, and lost reflexes in the lower limbs. An examination made one year later showed a paralysis confined to the peroneal muscles on each side, causing bilateral foot-drop. The knee-jerk was exaggerated on the left side and normal on the right side. Ankle clonus was persistent and Babinski reflex present. The cremasteric reflex was present on each side, and there was no involvement of the bladder or rectum. The lesion in this case must have been at the level of the fifth lumbar and first and second sacral segments, and was probably confined to the gray matter, as there was no incontinence. This case affords evidence that the center for the cremaster reflex is above the fourth lumbar segment, and not in the upper sacral as some believe. In the second case the spinal cord was wounded by a bullet at the level of the fifth lumbar vertebra, as shown by the X-ray. One month after the injury the legs had largely regained power. The area of anesthesia corresponds, according to Kocher's diagram, with the distribution of the second, third and fourth sacral segments. The most interesting point about this case is the exaggeration of the patellar reflexes by a lesion below the center of their reflex arc. The third patient sustained a fracture and displacement of the second lumbar and twelfth thoracic vertebra, as determined by the X-ray. The right lower

limb was completely paralyzed and in it sensation for touch and pain was diminished. The left lower limb was almost nominal for both motion and sensation. Patellar jerks, Achilles jerks, Babinski's reflex and ankle clonus were not obtained on either side. Three months after the injury the right lower limb still remained weak and sensation was impaired. Sensation was normal over the left lower limb, but diminished over the left half of the penis and scrotum. The most interesting feature of this case is the peculiar form of Brown-Séquard paralysis, *i. e.*, the weakness and hypesthesia of the right lower limb, with hypesthesia on the opposite side of the penis and scrotum. This symptom complex is explained by the fact that the lesion in the case was above the decussation of the sensory fibers supplying the pudendal plexus, which is lower in the spinal cord than that of the fibers supplying the lower extremity.

C. D. CAMP (Philadelphia).

SPASTIC DIPLEGIA (SO-CALLED SPASTIC SPINAL PARAPLEGIA), WITH PSEUDO-HYPERTROPHY. P. W. Nathan (N. Y. Med. Journ., March 26, 1904).

Many of the cases of infantile cerebral palsy present trophic disturbances, but these are usually of a mild character. There is usually atrophy of the muscle on the affected side. The writer reports a case of a boy aged 10, of negative history and heredity except for asphyxia neonatorum following a prolonged labor. Convulsions occasionally appeared, and when he learned to walk his gait was peculiar. He ceased to walk at all after awhile. At present he is unsteady. His feet are in an equinovarus position; when lying down he cannot rise himself. The calf muscles stand out prominently and are evidently hypertrophied, which with the lordosis, gives him very much the appearance of a patient with pseudo-hypertrophic paralysis. There is no apparent atrophy of the muscles elsewhere. He has good power over the hands, and can flex the thighs without difficulty. When compelled to walk he does so with a typical spastic atactic gait. The reflexes are exaggerated, as is the electrical reaction to both currents. He speaks slowly, with slightly imperfect articulation, and his mental development is nil, though this is more from neglect than from absolute mental defect.

W. B. NOYES.

SYPHILITIC LESIONS OCCURRING DURING TABES. Dalous (Revue de Médecine, January, 1904).

The author has collected from his own observations and from the literature a series of twenty-one cases illustrating the possibility of the co-existence of syphilitic lesions with tabes. He takes pains to state that the evidence here given is not a sufficient basis for an assertion of the syphilitic origin of tabes, but thinks it points strongly in that direction. Of these twenty-one cases nine were unaware of previous infection or absolutely denied it. Although these symptoms are sufficiently pronounced to make it impossible to confuse them with anything else, the length of time which has sometimes elapsed since the original infection and the denials of the patient often cause tabes to be referred to a trophic origin. The examination of these cases is interesting in that it demonstrates that syphilis may remain latent for many years and then at a given time manifest itself anew, and a consideration of its relation to the slow evolution of tabes, unanimously declared to be an incurable condition, may throw some light upon the treatment of the last-named disease.

JELLIFFE.

CLASSIFICATION OF SEVERAL VARIETIES OF FACIAL NEURALGIA. H. Verger (Revue de Médecine, January and February, 1904).

A lengthy and detailed study of the varieties of facial neuralgia, differentiated and studied by means of injections of cocaine *in loco dolenti*. The author states that the first result of his studies was to banish the



idea of neuralgia existing as a disease in itself, and revealing it as a symptom referable to different origins. He divides those manifestations commonly called facial neuralgia into two classes: (1) Those in which the injection of cocaine temporarily stopped the pain, from which he inferred that the cause was situated in the nerve endings, and (2) those in which the injection only brought on the neuralgic crisis, demonstrating that the exciting cause is situated further up. Those of the first group are certainly neuralgias of peripheral cause, while those of the second may be of funicular or central origin. Under these two classifications he records a series of eighteen observations, with detailed conclusions drawn from each, laying stress on the advantages in diagnosis offered by the use of the cocaine injections. He also gives the history of three additional cases where the neuralgic symptoms entirely subsided after the cocaine injections *in loco dolenti*. He also details a final case where the cocaine injections caused remission, but not entire subsidence of the symptoms. Throughout the article he emphasizes the advisability of medical treatment before resorting to surgical interference, and arrives at the following conclusions: In a case of neuralgia in default of etiological diagnosis, which is often impossible, diagnosis should be made at the seat of pain. (2) This diagnosis can usually be made by clinical evidence, but it should always be confirmed by the proof of cocaine injection. (3) *A fortiori* this proof is indispensable in all doubtful cases. JELLIFFE.

**MULTIPLE NEURITIS. A Case Resulting Probably from Morphine Toxemia.**

By Frank Halleck Stephenson (N. Y. Medical Journal, April 16, 1904).

Electrical tests in multiple neuritis give all possible changes from the normal. The muscles supplied by the affected nerves in multiple neuritis undergo changes only in less degree than those in simple neuritis and degenerative nervous diseases. The escape of numerous fluids in the nerve trunk is probably to be correlated with the persistence of numerous apparently normal fibers in the atrophied muscles, and the paralysis is, therefore, seldom complete. The diagnosis rests on the motor and sensory symptoms, their symmetrical distribution, their predominance in the extremities, the marked affection of the extensors, the modification of the reflexes, the marked tenderness of nerve trunks and muscles, and the history or presence of some toxic agent capable of producing the neuritis. In multiple neuritis we do not get the girdle pains, gastric and intestinal crises, the Argyll-Robertson pupil, the ulcers, joint lesions, arthropathies, optic atrophy, and very seldom the vesical troubles observed in locomotor ataxia. The peculiarity of gait is due more to paresis than to incoordination. The development of multiple neuritis is much more rapid than tabes.

**TUMORS INVOLVING THE CAUDA EQUINA.** George Gilbert Davis (Journ. A. M. A., March 19, 1904).

The following symptoms are regarded as typical of a lesion of the cauda equina. The patient first experiences pain on movement of the lower extremities; then the pain becomes spontaneous and persistent, with exacerbations. Later anesthesia begins. Symptoms of disturbance of the functions of the bladder and rectum may appear early, and are usually present before anesthesia becomes permanent. Muscular weakness is present in proportion to the pressure on the motor fibers, and as a rule does not appear until pain has become pronounced. The paralysis is characterized by loss of muscular tone; an early examination may show exaggerated reflexes; later they are diminished and lost. Atrophies of the muscle develop and electrical reactions may be altered; decubitus has been noticed. The involvement of one extremity more than the other, as in Fraenkel's case; the slow development

of motor paralysis of sensory disturbances and of other symptoms and the destruction of reflexes and other symptoms, and the destruction of reflexes before loss of power are other important symptoms. In disease of the conus medullaris symptoms develop more rapidly; the various sensory disturbances may not be alike, pain and temperature sensations are more frequently affected than tactile sense. Severe pain is absent. Decubitus is more frequent. Tumors having their origin within the cauda are not numerous. The writer has collected from literature a glioma, five sarcomas, five neurofibromas, one endothelioma, six of which tumors were removed with fair results. Cases in which the growth springs from the meninges are less common and the variety of the tumors is small. Sarcomas are most frequent, endotheliomas are less frequent, and rarely fibromas, lipomas and secondary carcinomas are found. The greater number of tumors of this region are extra dural. Typical symptoms are produced by growth and pressure on the dura and cauda, and in case the tumor is malignant infiltration of the dura occurs later.

NOYES.

**TYPHOID MYELITIS.** J. Lépine, (*Revue de Médecine*, Vol. 23, 1903, p. 930).

The author gives a description of the history of a patient 19 years of age suffering from typhoid, in whom the following unusual nervous symptoms developed: Increased sensibility to touch and to the point of a pin, especially affecting the lower extremities and the abdomen up to the level of the umbilicus. Tendon reflexes of the lower extremities increased most markedly on the right side. Babinski's reflex. General diminution of muscular power in the limbs, most marked in the lower. Voluntary movements, however, possible, slow and with slight incoördination. Gradually complete flaccid paraplegia developed, the cutaneous and tendon reflexes on both sides disappeared, marked diminution to every form of sensibility and incontinence of urine and feces supervened, and, despite the greatest care, bed sores formed. Post-mortem examination showed the presence of an acute anterior poliomyelitis, attaining its maximum development in the lumbo-sacral region, with central myelitis, extension of the lesion into the white columns (antero-lateral), and concomitant leptomeningitis. Other parts of the central nervous system showed only slight changes, there being very moderate implication of the motor roots and relative integrity of the sensory paths. Previous accounts of paralysis in association with typhoid fever are considered, and the author concludes that a neuritis or a myelitis may be a post-typhoidal condition. All degrees of acute inflammation may occur, the lesions being without doubt primarily vascular, with subsequent involvement of the cells, interstitial inflammation and degeneration, with a tendency to an upward propagation, thus assuming the type of acute ascending paralysis. Apparently the typhoid toxin is sufficient for the production of the lesion, the presence of the bacillus not being indispensable. Dr. Lépine obtained negative results on bacterial examination.

JELLIFFE.

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**Original Articles**

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PRESIDENT'S ADDRESS AT THE THIRTIETH ANNUAL MEETING OF THE AMERICAN NEUROLOGICAL ASSOCIATION, HELD IN ST. LOUIS, SEPTEMBER 15, 1904.

BY FRANK R. FRY, A.M., M.D.,  
OF ST. LOUIS.

GENTLEMEN:—For the very great honor of presiding on this occasion I beg to express to you my grateful appreciation. I hasten also to assure you that your presence here is a most pleasant compliment to our city. St. Louis has realized from the first that the success of her exposition as a creditable celebration of human advancement must depend on the presence and participation of representatives from all branches of human activity. Her effort to accomplish this has been cordially supported. The attendance of an association as truly representative as this one is another important and gratifying recognition of the spirit and purposes of her undertaking.

Partaking of this spirit we are expected to announce our existence and our relation to other activities. If the members will therefore kindly indulge me in a reminiscent mood I promise it shall not be of long duration.

The specialty of neurology is an instance of the division of labor; a legitimate division, resting on the fact that modern and necessary diagnostic refinement in diseases of the nervous system can be reached only by persons possessing special knowledge and skill. In the present development of medical science this fact is gaining general recognition, but it has only



been comparatively recently that the force of many practical neurological distinctions has appealed to the mass of our own and other professions, and that they have discovered the convenience and usefulness of the neurologist and the evident scope of his distinctive art.

Naturally neurologists feel that this recognition has been somewhat tardy. They cannot overlook the fact that the scientific basis of their specialty was shaping itself over two generations ago, and that even before then much practical work had been accomplished, and that other scientific workers have at times failed to grasp the inspiration of certain masterminds in neurology, the significance of their prophecies and the close connection of the same with other scientific advancement. In this respect, however, neurology is not an exception to other worthy movements. The peculiar trials which have helped to shape its history have only the better disciplined its adherents for important functions. The present-day neurologist, recollecting the earlier struggles and patient labors of his masters, accepts with a keener and more substantial appreciation the better fortunes which have befallen his specialty in these later days, and with the vision of an enthusiast prophesies its future. For when he pauses to recall the order in which the mind of man has attacked the greater mysteries of his environment and the formation of those sciences through which his present enlightenment has been gained, it seems evident that neurology must eventually attain an exalted station; for it deals directly with the most remarkable structure known to all science, the nervous system of man, and it undertakes to scientifically elucidate the functions of this structure and to guard especially its health and preservation. The proportions of this undertaking are best conceived by those who have worked the longest with it and closest to it, the neurologists. Their pretensions are modest. They claim simply the application of the inductive method, and that by its use enough has already been accomplished to bring neurology into important relations with the scientific fraternity.

Chemic, physiologic, biologic and anatomic sciences long ago began to feel the attraction of certain neurologic problems, and this has been stimulated by the increasing capacity

of the neurologist to turn to practical account proffered knowledge from all these sources, until the alignment between them and him is now of no uncertain kind. Psychology has turned from the vagaries of metaphysics to the more tangible data of the psychiatrist and neurologist, and this of course brings us into the councils of the pedagogists and civicists and even those of the ecclesiastics, and that too on the footing of a recognized specialty. With this our social conquest would seem complete without looking farther among our correlated scientific neighbors for support of our pretensions.

Meantime our brother practitioners in the other branches of medicine have been discovering us. The surgeon first found the neurological fold a convenient receptacle for many of the fleeced failures of his art. But he now owns that this providential meeting with us had other benefits. He has gained a more conscientious dread of neuropathic snarls, especially those of a post-operative kind, and to avoid them turns to the proper sources for ante-operative guidance. In fact, in our placid way, we have made a friend of him. And a most valuable friend he has been. Much of the recent progress of neurology is due to the wonderful skill of modern surgery. We gratefully acknowledge the debt and felicitate ourselves over the intimacy which has grown between these two specialties. I allude particularly to surgery in this connection, not only because it is an old and great specialty, but because our more frequent friendly tilts with it serve best to illustrate the gradual and, I may say, natural process by which neurology has established its present professional standing. If time permitted it would be a pleasant task to run down the list of modern specialties and collect instances of interdependency wherein neurology supplies necessary links; and at the same time to distribute acknowledgements and thanks where they belong for the aid that has come to us from all sides.

Those espousing neurology to-day either as a branch of practice or as a laboratory specialty find opening to them an inviting field; a great specialty wherein the pioneering has been so thorough that the lines may readily be drawn between the genuine and spurious, so that the newcomer must be possessed of a considerable equipment and of a definite kind be-

fore he may hope to take rank in the actual work. There are, however, abundant opportunities, and an eager welcome on the part of those who are most interested in advancing both medical science and the art of neurologic practice.

The influence of neurological thought and practice upon modern medicine deserves a closer analysis and better defence than are here attempted. I must leave it to abler advocates. In passing, however, I cannot refrain from mention of the share that Americans have contributed to its advancement. I had thought of a brief chronological résumé of their work. But it was soon evident that even the briefest possible would carry me far beyond the limitations of the usual opening remarks, and that I must content myself with mere allusions to some of the more evident results. In the way of illustration, the names erythromelalgia, athetosis, amaurotic family idiocy, adiposis dolorosa, progressive hemiplegia are the world over borne by well-recognized syndromes or diseases which were first recognized and described and named by Americans—all of them, by the way, members of this Association. I venture to cite these instances not as the only or even the most remarkable achievements of the kind, but they quite readily impress us with the alertness of our own neurologists. Other American names are just as indissolubly connected with the literature of neurology in all its departments. In the work-a-day problems of anatomy and physiology of cerebral localization and spinal cord differentiations, in the clinico-pathological studies of the same and of the neuroses and psychoses, in nutritional and familial diseases they have shown their ability to keep abreast the tide of a rapidly growing science. The volume of work thus placed to their credit is only known to our confreres, busily absorbed in other lines, when some one embraces a convenient opportunity to indulge in a little pardonable boasting.

Americans also were among the first to recognize the necessity of providing for the systematic teaching of neurology. Their early efforts to gain an adequate recognition for the branch in our schools and in stimulating others to train for the better teaching of it have never been collectively chronicled. The result of their work appears, however, when we



compare the present status of neurological teaching in this country with what it was ten, fifteen and twenty years ago. Twenty years ago an occasional lecture with a neurological title in some few of the schools was about all the pupil heard of the subject. Now every school of any pretention provides for both laboratory and clinical instruction in neurology as carefully as its resources permit. When the resources for scientific, literary and school work in this country are compared with those abroad it becomes evident, if one considers the matter attentively, that American neurologists have accomplished a great deal.

Again, in the organization of special societies wherein high-grade work is encouraged the American neurologists early adopted another well-recognized means for their advancement. Our leading men and most earnest workers have given these societies a loyal support. Those of us who are most familiar with efforts to maintain a worthy standing for these bodies feel a deep sense of gratitude for their patient and invaluable help. The men who have made these societies are the men who have made American neurology. In short, there has been a fortunate harmony, a strong and helpful harmony, in the work of American neurologists during the formation period of their specialty.

A happy illustration of the fact is the history of this Association. It was organized thirty years ago. A comparison between conditions then and now will give some idea of what its experiences have been. This is not only its thirtieth year but its thirtieth annual meeting. Its members are to-day proud of its record. And in the pleasant associations that have grown about it they find attractions which year by year more closely cement the bonds of fellowship and helpful unity. That it has been the alma mater of American neurology none will dispute. In all these years it has never lost sight of what should be the highest aim of a society of medical specialists, namely, to broaden the scope of the profession by working in touch and sympathy with all branches thereof. The friendly exchanges, the conditions of scientific reciprocity between these various branches are more satisfactory to-day than they have ever been before. In the accomplishment of this end

neurology has had an important rôle. To maintain the same it has at times been called upon to exercise considerable polite persistence and scientific insistence, as I have already intimated. Under the shelter of wholesome organizations these necessary contentions attain a dignity and value on all sides which may be assured in no other manner. The validating function of a professional society is, however, only useful when never abused. Hence the necessity of maintaining the high standard which this Association has sought after.

We find, therefore, multiplying reasons why we shall seek as an Association to strengthen ourselves, but the chief one always will be that we may thereby help others.

## PURULENT MYELITIS.—FOCAL AND DISSEMINATED.<sup>1</sup>

BY JOSEPH COLLINS, M.D.,

OF NEW YORK.

Abscess of the spinal-cord being a most uncommon disease (there are 17 or more cases on record) the clinical picture which it produces is not very well known. Because of the nature, extent and complications of the disease, the symptoms which it causes are liable to the greatest variation. For instance, in the case reported herewith, the diagnosis of syphilitic spinal paralysis had been made, and naturally when the paraplegia was not yet complete such diagnosis was quite as tenable as any other. Moreover, in this case there was apparently no attributable cause or starting point for the abscess formation, save possibly an attack of influenza, and although I considered the case one of abscess or gumma of the cord which had undergone disintegration, this diagnosis was reached only by exclusion. Although in four of the seventeen cases that are to be found in the literature, there seems to have been a primary infection of the spinal cord, in all of the other cases the abscess was evidently the result of trauma (five cases), of metastasis (seven cases), bronchiectasis, gonorrhea, and suppurative prostatitis.

The onset and course of the disease, its clinical manifestations and the findings of the autopsy in this case are therefore of very considerable interest.

The patient, an unmarried Frenchwoman, twenty-five years old, was admitted to the City Hospital, February 20, 1902.

The history of her illness seemed to be as follows:

Two years ago, while still in France, she fell from a step-ladder striking the front of her body, legs and head. There were no injuries from this fall so far as she knows. Two months later she came to this country and went to work as a chambermaid. In the beginning of the year 1901, i.e., ten months before her entrance to the City Hospital, she says she had the grippe for a week, and it is from this time that she

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<sup>1</sup> Read by title American Neurological Association.



dates her illness. She soon began to complain of a sensation of coldness and pain in the left lower extremity and in the small of the back. A month or so later she remarked that the left lower extremity was becoming weak. She continued work until about Easter, when she felt obliged to stop.

Until June 1, 1901, or thereabouts, when she was admitted to the French Hospital, she was able to walk with the aid of a stick or umbrella. Her condition was thought to be syphilitic disease of the cord, and she was given vigorous antisyphilitic treatment, inunctions, hypodermic injections of bichloride of mercury, and potassium iodide in increasing doses up to 120 grains 3 times a day. She continued to grow worse, however, i.e., to develop more profound enfeeblement of the lower extremities and to complain of pain, especially in the front of the left thigh and groin and occasionally in the abdomen, and in February, 1902, she was sent to Bellevue Hospital.

About a month before this time (January 1, 1902) she dates the involvement of the right lower extremity. Her most troublesome complaints at this time were (1) that the right leg felt cold, (2) the knees had a burning sensation, (3) the legs were stiff, not weak, and (4) there was a constant sensation of distressing burning pain in the lower part of the abdomen.

She was able to walk about fairly well until December, 1901, when, as she says, the right leg became paralyzed. She complained when she entered the City Hospital (February 20, 1902) of pain in the right thigh, constipation, some pain before and after micturition, and occasionally of some difficulty in starting the flow of urine.

A transcript of the examination made on February 21 is as follows: A finely built, handsome young brunette of intelligent expression, apparently well nourished although somewhat anemic.

She walks haltingly, with the aid of sticks, the right leg is very weak and uncertain. There is no muscular atrophy of either lower extremity. Both knee-jerks are exaggerated, and there is well-marked patellar and ankle clonus. A Babinski reflex is elicitable in both feet.

*Sensibility:* Left Lower Extremity—On the anterior surface of the thigh superficial sensibility is impaired; deep sensibility is intact. On the outer side sensibility to touch and temperature is lost. There is general hypoaesthesia of the left leg. On the inner side of the leg tactile sensibility is lost, but temperature sensibility is preserved. On the posterior surface there is less disturbance of sensibility than on the anterior.

Right lower extremity: She mistakes superficial irritations, thinking the left leg is touched. On the inner and outer

surfaces of the thigh all sensitiveness is lost. The anterior surface is somewhat sensitive. Anterior surface of right foot is sensitive to touch but not to temperature.

There is an area of hyperesthesia at the level of the 11th rib on the right side, and the abdomen is hypersensitive to touch and temperature.

Examination of the viscera reveals no abnormality.

The upper extremities and the cranial nerves are unimpaired.

A blood count shows hemoglobin 75 per cent; red blood cells 5,354,000; white blood cells 9,000. There are symmetrical scars over the shins, likewise a peculiar greenish brown discoloration in spots which appear typically syphilitic.

Examination April 14, 1902: The patient is now completely paraplegic. She can scarcely make any voluntary movement whatsoever of the lower extremities. The left lower extremity is spastic and resistant. The left leg seems an inch shorter than the right. This is due to the spasticity. Both plantar reflexes are absent; on the left side there is slight contraction of the tensor vaginæ femoris when the sole of the foot is irritated, but there is no movement of the toes.

The knee-jerks are elicitable on both side; the left is livelier than the right. The ankle-jerk can be elicited, the left being livelier, but there is no real clonus.

There is anesthesia, thermoanesthesia and some analgesia from the crests of the ilia and a line drawn around them, downward, in both extremities. The anesthesia is not absolute. It is most profound in the anoperineal region.

Just above this line is a belt of hyperesthesia two inches wide. Above the line of analgesia there is a thin line of thermoanesthesia on both sides.

The fine line of hyperesthesia exists only on left side. Excepting the left half of vulva and perineum which has escaped sensory disturbance, the remainder is anesthetic to all forms of stimulation. The right quadriceps extensor does not respond to the faradic current. All the other muscles do. There are no bedsores.

May 15, 1902.—There is no sphincter disturbance, but she had to be catheterized yesterday, because attempts to pass water caused her so much pain. The patient assumes no pathognomonic attitude. The left foot is warm, the right cold. This difference in temperature is apparent in the entire extremity.

There is no voluntary movement of the lower extremities. The abdominal muscles seem to act vigorously and with slight assistance she assumes the sitting posture. There is some spasm of the back muscles which interferes with mobility. The plantar reflexes are absent. The ankle-jerks present,

there being a slight clonic response which exhausts quickly. The knee-jerks are present, the left being stronger than the right, but not much exaggerated. There is no cross jerk. The abdominal reflexes are absent. The left gluteal reflex is slow, the right lively. The interscapular reflexes are lively, likewise the anal reflex.

The spine is tender, especially the 10th dorsal vertebra. Deep sensibility is impaired more in the left lower extremity than the right. She cannot tell when the left thigh is flexed or extended, but she has some idea concerning the right.



Fig. 1—Focus of disintegration in the sacral cord. Almost complete destruction of the gray matter.

Circumference of left thigh 36 cm.; circumference of right thigh 37 cm.; circumference left middle thigh 76 cm.; circumference right middle thigh 77 cm.

The patient died June 24. For a week or two preceding death there were fever, increasing weakness of the upper extremities and coma.

Summary and Recapitulation.—An unmarried woman, twenty-five years old, had an attack of influenza in January, 1901, shortly after she complained of paresthesia and pain in the left leg and back. Three months later she had to stop



work because of weakness of the left leg. Pain and weakness continued to grow worse, and in January, 1902, the right lower extremity became involved. The right leg felt cold, there was a burning sensation in the knees, the legs felt stiff, and there was a constant sensation of burning in the lower part of the abdomen. Examination, February, 1902, showed exaggeration of the knee and ankle-jerks, patellar and ankle-clonus and Babinski jerk. Anesthesia on the anterior surface of the left thigh. Anesthesia and thermo-anesthesia on the outer side of the same area. On the posterior surface there was less disturbance of sensibility than on the anterior. On the inner and outer surfaces of the right thigh complete loss of sensi-

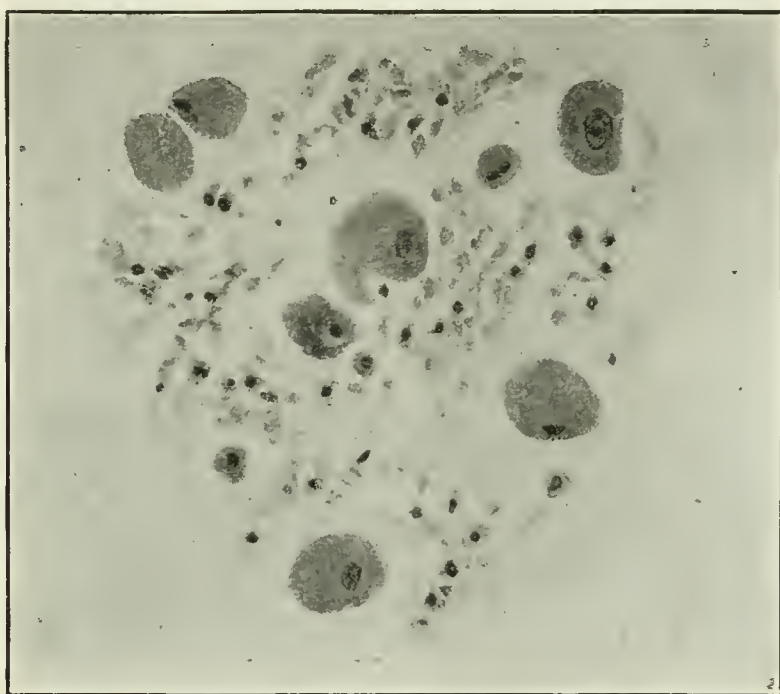


Fig. 2—To show absence of nerve fibers in the sacral focus.

bility. On the anterior surface of the right thigh there was still some sensitiveness. Two months later complete paraplegia, the left leg being spastic, the right flaccid. Loss of both plantar-jerks, knee- and ankle-jerks present, left greater than right. Anesthesia, thermo-anesthesia and some analgesia of both lower extremities from the crests of the ilia and a line drawn around them downward. Just above this line there is a belt of hyperesthesia two inches wide. Tenderness of spine at 10th dorsal vertebra. Striking vasomotor changes in the left foot. Death June 25, 1902.

Description of the general autopsy is omitted. No evi-

dences of syphilis were found. The viscera or other structures of the body revealed no focus from which the abscess of the cord took its origin. When the spinal canal was opened the entire lower end was flooded with thin creamy pus. No abscess cavity was then detected. The sacrum seemed very soft, and it was removed and prepared carefully for the examination which revealed that it was not diseased..

When the cord was removed it presented from the lower dorsal region downward a thick, pulpy soft mass which at first gave the impression that it had been bruised post-mortem.



Fig. 3—Showing foci of purulent disintegration in the left anterior horn of a lumbar segment.

The dura over this region was greatly thickened and adherent to the cord. In the sacral region a longitudinally placed cavity was to be seen. This first appeared like an extra-spinal cystic bag, but closer inspection and microscopic examination showed it to be an intramedullary cavity situated chiefly in the posterior portion of the gray and partly also in the white matter. It reached from the lower end of the cord about one inch upward. Downward it drained directly into the interstices between the root-bundles of the cauda equina, which interstices were filled with pus.

Microscopical examination.—(1) *Cauda equina*: Sections through the cauda equina show most of the septa between the nerve bundles thickened and beset with round cells. The masses between the roots that grossly appeared as pus, consist of agglomerations of polynuclear leucocytes (Busch, or Busch—van Gieson).

Busch specimens (modifications of Marchi) show in many bundles scattered black spots corresponding evidently to most degenerated fibers. In Weigert sections most of the bundles show a fairly normal appearance; however, in the vicinity of the pus processes, evidences of destruction of considerable

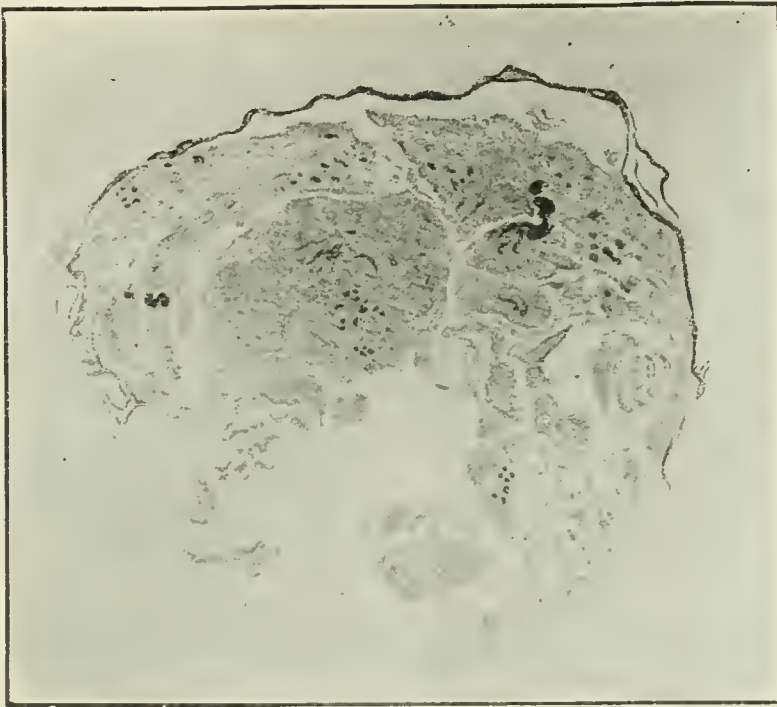


Fig. 4—Twelfth dorsal segment, showing marked destruction of the cord. Uppermost end of myelitic focus.

fiber masses are found, this is shown more clearly by these than the Busch specimens.

(2) *Sacral Focus*: On transsection the focus is seen to destroy most of the gray matter, only one anterior horn being fairly well preserved in appearance and outline, and a few cells left in the other one. Of the structure of the posterior horn nothing seems to be left. On the side of the preserved anterior horn, most of the white matter is also fairly intact. On the other side of the cord only the anterior column and a trace of the adjoining lateral column remains. The focus shows a large cavity or gap in the center. Fig. 1.



Histologically, it presents itself as a confluence of a great number of foci of circumvascular round cell infiltration. In some parts the vessels are very numerous and show large cells with large nuclei concentrically (onion-like) arranged, some of them budding into the lumen. Many of them appear like newly formed vessels. Besides these elements a very striking feature is the presence of a large number of vesicle-shaped round or oval cells, some of them very large, although all sorts of sizes are represented, some of them not being larger than a pus cell. These small ones are frequently without a nucleus. Most of the others have one nucleus and some apparently two nuclei. In the large cells the nucleus, although absolutely large, appears pretty small as compared with the size of the

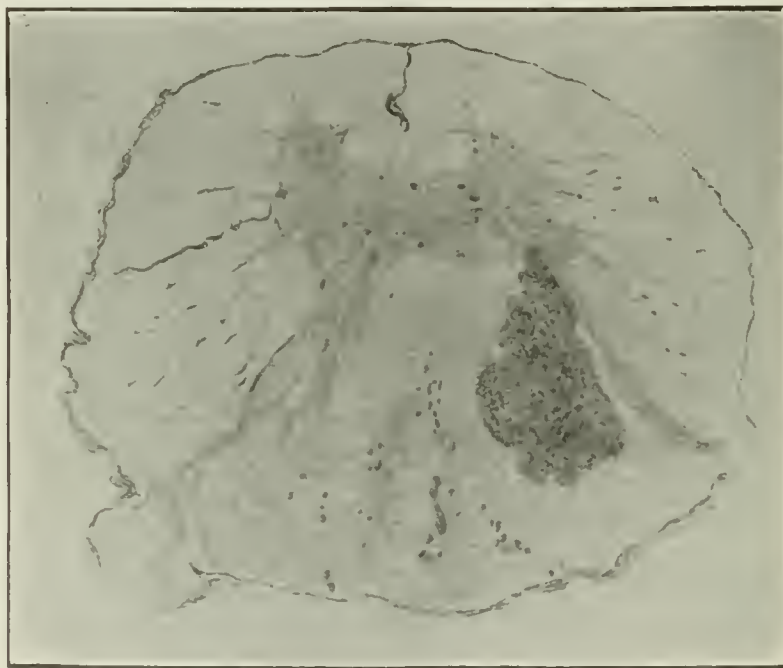


Fig. 5—Section at the dorso-lumbar junction, showing purulent foci in the posterior horn

entire cell. Besides the chief central focus a number of small foci are scattered throughout the relatively well preserved portions of the cord. They are round cell agglomerations grouped around blood vessels.

So far as Nissl specimens permit an expression of opinion (beginning post-mortem changes being evidently present) the cells that are left over have a normal appearance, many of them, however, being pigmented. Only a few cells show marked chromatolysis. Weigert and Pal sections of the sacral region show nothing particular except almost entire absence of nerve fibers in the region of the central focus. Fig. 2.

(3) Lumbar focus: Transsections show the lumbar region to be much smaller and distorted, the dura greatly thickened. The outlines of the gray matter can be made out with great difficulty, the anterior horns being the only parts of it that stand out. The remainder can hardly be made out at all. The anterior horn that is seen on the left side of the picture (Fig. 3) appears to be twisted sideward.

On the left side (in the picture) there is a focus reaching from the base of the anterior horn backward in a direction more or less parallel with the median fissure and being almost 1 cm. long (in dorso-ventral direction) and about 1 mm. wide (in transverse direction). This focus consists mostly of round cells. The majority of these are mononuclear, but in some

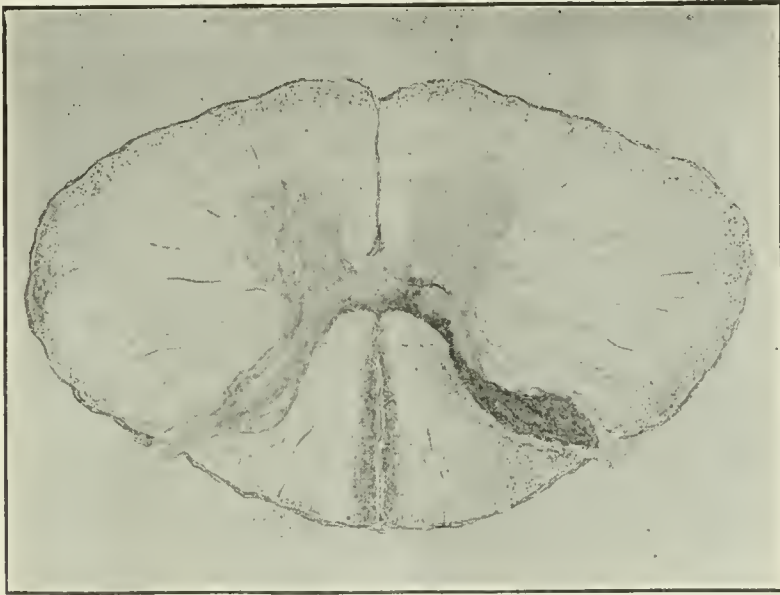


Fig. 6—Showing localized destructive process in the mid-dorsal region.

places, especially in the central part of the focus there are accumulations of polynuclear and polymorphous leucocytes are present. (Fig. 3).

Another larger focus seems, as far as the distorted picture allows one to judge, to occupy the lateral part of the anterior horn and the region of the lateral column directly adjoining.

A number of smaller foci are scattered all over the transsection. They vary somewhat in their composition, however. Many consist of circumvascular accumulations of mononuclear round cells; at least these round cells are predominant or cover and hide almost all other elements if such be present. Other foci show chiefly swelling and apparent increase

of the nuclei and cell bodies of endothelial cells, particularly in the smaller blood vessels, also of the nuclei of the muscular coat, and frequently numerous nuclei are seen in the neighborhood of such a vessel, bearing great resemblance to the nuclei of the endothelial cells, others to those of the non-striate muscle cells of such vessel, pointing thus to a proliferation and migration of muscular and endothelial elements of the vessels.

In some regions nuclei of the above two descriptions and mononuclear round cells (the latter standing out by their deeper stain and smaller size) are found accumulated in mixed profusion making it very difficult to trace their origin. The

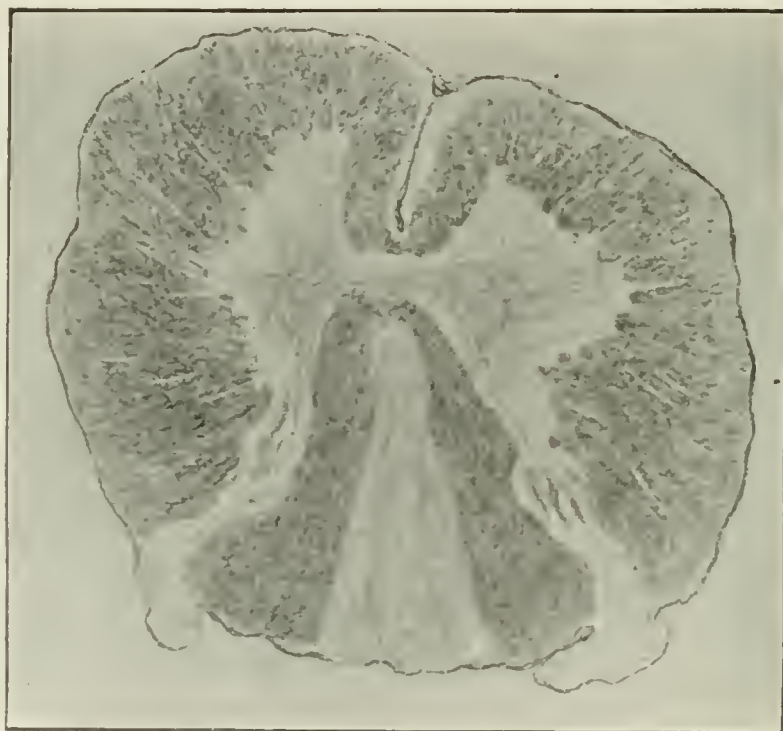


Fig. 7—Showing pronounced degeneration of the postero-internal columns in the cervical region.

vesicular shaped cells or bodies found in the sacral region are also encountered here but not in such great numbers and most of them have no nuclei. They appear as hyaline bodies of different size.

Weigert sections show a marked scarcity of nerve fibers all over the transsection, in the white matter as well as the gray. This scarcity is on the whole fairly equally distributed, although particularly marked in the region of the foci.

The nerve cell changes seen in the anterior horn of Nissl specimens from the lumbar region are surprisingly slight. Cells with marked chromatolysis, i.e., with a pale, almost ho-



mogeneous center are seen, but their number is small. The others have practically a normal appearance.

Sections from the upper region of the myelitic focus (the lowest dorsal or uppermost lumbar region, Figure 4) show very marked destruction of cord. All that remains of visible structure of the gray matter is a group of large cells recognizable as anterior horn cells by their size and shape, and in another region isolated insula like two or three more cells are seen. The figure shows the great number of inflammation foci, present here, and an extreme thickening of the dura.

Sections a little lower, i.e., macroscopically quite near the upper end of the large myelitic focus show a large pus focus (see figure 5) in one of the posterior columns, reaching laterally to the gray matter and partly encroaching upon it, i.e., upon the neck of the posterior horn. Goll's column is here distinctly degenerated.

Sections from the middorsal region show that the cord here is the seat of extensive inflammatory changes. One large focus extends from the base of one anterior horn dorsad along the posterior horn, destroying evidently most of the latter. It consists largely of polynuclear leucocytes (pus cells) and shows a longitudinal cleft (artefact?) in its center. (Fig. 6).

The anterior horn of the same side is thickly beset with cells and nuclei, many of these being evidently nuclei of leucocytes, others apparently of other origin. Many blood vessels with their perivascular spaces thickly packed with round cells are seen, as well as a great number of minute hemorrhages, scattered over the white and gray matter. Owing to these changes the outlines of the gray matter are much obscured in many places, especially on one side.

The upper cervical region shows a pus focus occupying the head and partly also the neck of one anterior horn. Otherwise the inflammatory changes here are slight. Weigert specimens show a marked degeneration of Goll's column. (Fig. 7).

Sections from the midcervical region stained according to Busch show on one side marked degeneration of Goll's column, of the zone radicaire, of an area corresponding pretty well to that of the pyramidal tract, and of Flechsig's and Gowers' tracts.

On the other side the degeneration involves Goll's column, a small dorsal zone of the zone radicaire, and Gowers' and Flechsig's tracts.

Thus we have an extensive disseminated purulent myelitis with numerous foci and one relatively large cavity or pus pocket in the sacral cord. This was unquestionably the orig-

inal focus, as the symptoms correspond closely to a lesion in such location. The striking and remarkable variation in the clinical picture in the last few weeks of the patient's life are to be explained by the dissemination of the purulent foci, the extension of the inflammatory process about them, and the widespread affection of the meninges.

## HALLUCINATIONS

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Since the time of Esquirol,<sup>1</sup> illusions and hallucinations have been sharply distinguished. The former being "the false interpretation of external objects," the latter "subjective sensory images," conditioned centrally without the operation of an external stimulus. This distinction is so readily made by language that—given the definition of illusion—that of hallucination presents itself as a corollary, and no one seems to have doubted that the difference so readily and accurately expressed corresponded to an actually existing state of things. Taking for granted the correctness of their definition, psychologists and psychiatrists have vied with one another in their attempts to explain hallucinations. As a result, we are overwhelmed with theories of all degrees of probability, supported by arguments of more or less doubtful coherence and reinforced by classifications and finely drawn distinctions.

Let us turn to our authorities and find what they consider an hallucination to be. Griesinger<sup>2</sup> says: "By hallucinations we understand subjective sensorial images, which, however, are projected outwards, and thereby become, apparently, objects and realities;" Tuke,<sup>3</sup> that they are "Sensations experienced, although no external objects act upon the periphery of the sensory nerves"; Von Krafft-Ebing,<sup>4</sup> that "Hallucination is the result of an excitation of the central apparatus of a sensory nerve by an adequate ideational stimulus sufficient to give the force of a sense-impression to the answering excitation, which is projected outwards;" Kellogg<sup>5</sup> writes, "An hallucination is the void conscious revival of a sense-impression without a physiological peripheral stimulus," and so on indefinitely.

The common feature of all these definitions is the essential part of Esquirol's distinction, viz.: that the hallucination is centrally originated, that it is an idea or memory image, intensified and projected outward, *i. e.*, become a sensation.

This theory is founded upon a complete misconception of the mental state in hallucination and of the nature of sensation. It is absolutely impossible for a centrally aroused idea to be mistaken



for a sensation. The most characteristic feature of a sensory impression, in fact, the very feature which stamps it as such, is the feeling of objectivity, of externality that goes with it, and no centrally aroused idea can acquire in any way this feeling. In other words, an idea of a sound cannot by any possible increase in intensity actually become a sound. As Meynert<sup>6</sup> well says: "The mnemonic image of the most terrible burn is not to be compared in intensity, as regards its effect on the skin, with the faintest touch of a feather. The mental picture of the sun's bright disc has less to do with an impression of light than the least conceivable fraction of the glowworm's faint radiance. The ear-splitting roar of a cannon as a mere image in the memory has less power to affect the sense than the immeasurably minute sound of a hair falling upon water." And as Griesinger<sup>2</sup> acknowledges: "The patient really, and not merely thinks that he hears, sees and smells."

To account for this feeling of externality and projection outward of the hallucination, and also for certain cases where the sense organ itself appeared to be involved, an addition to the above-described theory was evolved, whereby it was assumed that the sensory channels became the seat of a centrifugal nerve current, originating in the higher ideational cortical centers, and following thence to the sensorium, and from there on downward in many cases to the sense organ, where the conditions present indicated a local disturbance therein.

It is a sufficient criticism of this theory of centrifugal conduction to say that it is founded upon a purely gratuitous assumption. No adequate proof has ever been offered that a sensory nerve can conduct in other than a centripetal direction. Bert's classical experiment of grafting the end of a rat's tail into the middle of its back, and then, when it had grown fast, cutting it off at the root and finding that it was still sensitive, proves nothing. It is true that this fact might be explained on the assumption of a reverse current in the sensory nerve, but it could equally well be accounted for by the theory that the motor nerves had assumed sensory functions.\*

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\* These two explanations do not exhaust all the combinations which can be conceived of as being possible. During healing it is not probable that everywhere a sensory nerve united with another sensory nerve and a motor nerve with a motor nerve. Sensory and motor nerves may have united with one another, and again it is possible that some new nerve channels may have been formed. There is no evidence on these points.

In addition to these two theories, the "central" and the "centrifugal," we have to note that certain authors have endeavored to explain hallucinations by centripetally conducted nervous impulse. As Parish<sup>7</sup> says, however, "Most of the writers who support this view seem more or less alive to its bearing on Esquirol's distinction between hallucination and illusion, but so bred into the bone is this time honored distinction that they do not at first so much as attempt to discover whether there are really any hallucinations in Esquirol's sense at all. They simply take them as proved, and proceed to set up new categories. Schlager,<sup>8</sup> for instance, distinguishes not only between hallucinations and illusions, but creates another class, abnormal sensations, strictly so called, which he endeavors to explain, speaking of olfactory cases, through polypoid growths in the mucous membrane of the nose, through concussion of the brain, apoplectic attacks, etc., that is to say, through inadequate stimuli. Whilst he was able to observe numbers of these phenomena, he could not succeed in meeting with any genuine hallucinations at all. Lazarus<sup>9</sup> considers that in hallucination the sensory nerves are stimulated throughout their course to the center by internal processes, but he creates a new class, "visions," which he explains on the psychical theory.

It is plain from this hasty review of the various theories which have been advanced to account for hallucinations that every possible locale has been considered as the place of their origin. Both the "central" and the "centrifugal" theories we have found good cause for rejecting. It remains, however, for us to examine the "centripetal."

Aside from the theories of Schlager and Lazarus already mentioned, who merely avoid the main issue by creating new classifications, we have the more modern theories of Binet and James. Binet,<sup>10</sup> by a series of experiments with suggested hallucinations, concluded that in every case the hallucination was associated, built about, as it were, some object of the environment—the so-called *point de repère*—and that this was essential to give the sense of objectivity to a suggestion. James, on the other hand, assumes the existence of a centripetal current, be it ever so weak, and this "bucket theory"<sup>11</sup> is an elaborate attempt to explain the cellular dynamics of hallucination. To quote his own words: "When the normal paths of association between a center and other centers

are thrown out of gear, any activity which may exist in the first center tends to increase in intensity until finally the point may be reached at which the last inward resistance is overcome, and the full sensational process explodes." "Whenever the normal forward irradiation of intra-cortical excitement through association-paths is checked, any accidental spontaneous activity, or any peripheral stimulation (however inadequate at other times) by which a brain center may be visited, sets up a process full of sensational intensity therein."

It will be seen from these statements of the theories of Binet and James that the former has devoted his energies to the environment, the latter to the cellular processes of the brain. No one thus far has seemed to consider the sense organ itself worthy of much attention. It is true that here and there an investigator has called attention to the condition of the sense organ in hallucinations, particularly Schlager, before mentioned, and Hoppe.<sup>12</sup> There does not, however, seem to be any unanimity of opinion as to the origin of hallucinations among investigators, but, on the other hand, a generally prevailing tendency to accept Esquirol's distinction.

Within the past few years the knowledge of the several sense organs has been materially added to, especially the knowledge of their various diseases, and coincidently a greatly improved technique of their examination has been developed. The time, therefore, seems ripe for a systematic study of the end organs in hallucinated patients, with a view of determining just what relation, if any, exists between their states and the condition of hallucination.

With this idea in view I began, sometime since, at the suggestion of Dr. Sidis, and with the assistance of Dr. Daly, a systematic examination of all hallucinated cases as they came to my attention. Owing to circumstances over which I had no control my work had to be discontinued, but Dr. Sidis has recently published<sup>13</sup> the results of his labors along the same lines, and I feel that the time is ripe for calling attention to what has been accomplished and illustrating the new theory which has been developed by a few of my cases, although I realize that they were not studied as carefully or as thoroughly as would have been desirable.



This theory of Sidis' may be called, as distinguished from the other theories of hallucination, the peripheral theory—a paradoxical expression from the standpoint of the definition of Esquirol. It is based upon the assumption that perceptions of any sort, whether of external objects or hallucinations, must have a peripheral, a sensory origin to account for that feeling of externality, objectively that I have already called attention to.

A short inquiry into the nature of perception is, however, necessary to understand the method by which peripheral stimuli can produce hallucinations. I see an orange before me on the table. I see that it is round, at a certain distance from me, and of a certain consistency, smoothness, size and weight. The image cast upon the retina is simply that of a round, variously shaded patch of yellow; the perception of distance is due to the sensations derived from the ocular muscles in accommodation, convergence of the visual axes, etc., while the perceptions of roundness, smoothness and weight are inferential from previous tactile and kinesthetic sensations. These associated elements in the perceptions are, however, very different from ideas, or memory images. The element of weight, for instance, is quite distinct from either the abstract idea of weight or the memory of the weight of previous oranges. The weight can, apparently, be actually seen and thus forms an organic part of the percept orange.

In illustrating this point Sidis says: "In seeing a lump of ice we perceive its whiteness, its transparency, its hardness, its smoothness, etc. These elements seem to be given directly in sensory experience. They seem to be directly perceived and still are qualitatively different from the hardness, smoothness and coldness, as given directly by the experience, when the hand gets hold of a smooth lump of ice. The sensory elements are determined and colored by the central visual sensory elements. The sensory elements of coldness, hardness, smoothness are of a visual character.

"It is usually claimed that such additional elements that are not given directly by the stimulated organ are elements representative in character, derived from the memory. This statement is not quite correct. In seeing the piece of ice the hardness and smoothness are not re-presented, they are *presented* to the eye; we really seem to see, to experience these sensations going to make

up the percept ice. It is not true that on catching sight of a whitish, transparent, glittering lump we remember that it is also hard, smooth and cold. The whole percept with all its sensory elements appears at once in the synthesis of the percept ice—we see, we perceive the hard, smooth, cold ice. The hardness simply remembered is altogether different from the hardness perceived in the seeing of the lump of ice.”

What happens then in normal perception is that the sensorium is excited primarily by the particular form of sensory stimulus, brought in by the acting sense organ, and, secondarily, by the irradiation of this stimulus into adjacent sensory fields. The percept receives its specific sensory quality—visual, auditory—from the nature of the primary, focal sensory stimulus, and is made complete by the added secondary elements.

Now, all that we have to conceive to explain the phenomena of false perception is the shunting of the main current of the sensory stimulus into the adjacent sensory fields, thereby arousing the secondary sensory elements to undue intensity, so that they occupy the sensorium on an equal footing, or, perhaps, to the exclusion of the primary elements.

The phenomena of secondary sensations, the so-called sound photisms, light phonisms, pain photisms, etc., have been known for a long time, and are not particularly infrequent. Bleuler and Lehmann<sup>14</sup> found them present in one form or another in 76 persons out of a total of 596, *i. e.*, 12½ per cent. In most all of these cases, however, that have come to my attention the primary and secondary perceptions are both present in consciousness, and the patient usually has not serious difficulty in distinguishing the false perception. Sidis has been the first to apply this theory of secondary sensations to the explanation of hallucinations, and the following cases will illustrate how the phenomena as ordinarily experienced can graduate into a true hallucination.

*Case I.\**—Mrs. J., aged twenty-five years, in good general health, complains of naso-pharyngeal catarrh and tickling in throat causing cough. She has deflected septum and enlarged lingual tonsils. Operation upon these and subsequent application of ordinary styptics have been accompanied by the odor of almonds, located on the side of the nose.

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\*Cases I and II communicated by Dr. R. R. Daly.

*Case II.*—Mrs. B., aged twenty-eight years, complains of having a bad odor in her breath, which seems most acute to her in her nose. Her friends tell her that they cannot detect any unpleasant odor. She seeks special medical advice because she appreciates this odor and suspects friends of being too courteous to tell her of it. She is in good general health with slight hacking cough and tendency to clear throat.

Examination shows the nose to be in normal condition throughout, the nasal vaults are unusually accessible, thus leaving no doubt as to their healthy condition. Pharynx and larynx also normal.

The nostrils were alternately plugged, the lips closed, and air from each nostril and the mouth tested separately. Not the slightest odor could be detected, though she appreciated it herself as being very disagreeable. Two small lingual tonsils were more closely examined, and upon the posterior side of each a minute morsel of food was found. This was removed, but on examination was found to have absolutely no odor. It had not undergone sufficient change to disguise its character—it was bread. Shortly after its removal the bad odor grew less. Both tonsils were at once removed, and the patient sent home. At the end of two days all odor had disappeared. At the end of four days there was still no odor, but it was induced by touching the neighborhood of the tonsils by a small pledget of cotton carrying a weak solution of citric acid. At another time it was induced by a very weak faradic current. The odor had not reappeared at the end of six weeks, except by stimulating the taste goblets, and the patient was entirely relieved of the hacking cough.

This latter case was truly hallucinated by a secondary sensation although she was not insane. It can be readily seen, however, how such a phenomenon, occurring in a predisposed individual or in one already over the border line, might soon form the focus of well-marked persecutory delusions.

*Case III.*—D. C., a young woman admitted to the hospital with an acute psychosis of the confusional type, with dream-like hallucinations, both visual and auditory. She saw all sorts of visual images, processions of soldiers and the like, and also heard voices. After recovery said that the figures she saw were in motion, and the principal direction of their motion was downward, so that she had to strain to keep them up in the visual field; also saw patches of light, which moved by preference to the right.

Examination shows vision 20/20 for both eyes, with slight astigmatism and slight photophobia with somewhat abnormally red retinal reflex. Septum slightly deflected to left into middle meatus.



Right middle turbinated is bullous and impinging on septum. There is a sub-acute catarrhal naso-pharyngitis, probably following diphtheria, which she has had three times. Ears show slight retraction of drum membrane, with slightly shortened cone of light in each side.

Stimulation of the retina by having patient look at light of an Argand burner produced sound as of ringing bells, which lasted 42 seconds after the light was turned off and eyes shut. In trying this experiment again the sound developed in 27 seconds after the stimulus was applied, and had ceased in 22 seconds after it was withdrawn.

In this case the motion of the visions would indicate that they were due to *muscæ volitantes*. Particularly is this indicated by the straining effect required to keep the images within the visual field. There is present, however, a well-marked catarrhal condition of the pharynx with abnormalities of the septum and right middle turbinated, which have resulted in a moderate grade of middle ear disease. There are also present on experimentation elementary light phonisms.

The sensory falsifications probably took their origin in the extremely sensitive eye from the misinterpretation of floating bodies in the vitreous. The patient seeing these bodies against the light walls and ceiling of the room as she lay upon her back. The constant stimulation of these sensitive eyes brought about the light phonism which were interpreted as voices, the auditory centers being in an especially susceptible state, due to the summation of stimuli from the abnormal end organs.

The following case I was able to experiment with somewhat during the time she was hallucinated. It shows some points of interest:

*Case IV.*—G. E. M., female, married, passed menopause. Diagnosis, paranoia. Her mental alienation is stated as having originated about one year ago, when she lost her older daughter, to whom she was deeply attached. At this time she became much depressed and suffered from considerable gastric disturbance, so that it was some weeks before she rallied and was able to take much food. Her mental trouble all along has been much aggravated by her husband, who, although he provides liberally for his family, causes her much concern by indulging to excess in alcohol periodically.

At present she claims to be able to see visions of the spirit

world. She is continually surrounded by spirits, and can always see them and believes firmly in their reality. The origin of these hallucinations, she explains, was from her intense desire to see again her dead daughter, of whom she has no picture. Since she first saw a vision of her daughter, however, many other spirits have appeared to her, in fact, she says that she has had visions from time to time ever since she was a child. She has lately suffered much from some of the spirits who she thinks are evil in nature. They keep her awake nights and bother her with pains in different parts of the body, etc. She has never been able to communicate with these spirits, but of late has occasionally heard them speak a few words, and these words are usually heard in the right ear.

An examination disclosed that her vision was apparently quite good for one of her age. She was asked to fix her attention on the spirits about her and describe how they looked. She did so, and it was noticed that she closed her eyes. In reply to a question she said that she usually saw the spirits better with closed eyes. An examination of the hearing disclosed that with the right ear she could only discover the ticking of a watch when the watch almost touched the ear. With the left ear she could hear the watch tick about 37.5 cm. distant.

The aurist who examined her ears some time ago told me that she had some catarrh of the middle ear, but beyond this there was some "nerve trouble."

An examination of the eyes was made by my advice. Atropine was put in them for the purpose of making this examination. Her attending physician then at my request observed the effect upon her visual hallucinations. He tells me to-day that so far as he could observe no effect was produced, that the hallucinations were as clear as ever. This certainly strongly negatives Binet's *point de repère* theory.

My experiments in this case consisted in the main of stimulating the auditory nerve in various ways—by talking, reading, singing and the use of the tuning forks. When the experiments were commenced the spirits *were seen very indistinctly*, only the general outline was visible and not the faces; after the experiments had been continued a short time the *spirits' faces could be seen*, and wore an expression of interest, and after a still further interval, during which I continued to apply auditory stimuli, the patient said that the *spirits were more numerous* than at first and they *came nearer to her*. It was found also that relaxation of the accommodation would cause spirits to appear in the visual field.

In this case there is direct evidence of the effect on hallucinations in one sensory field of stimulation of the sense organ belonging to another sensory field. It is also noteworthy that the

visual hallucinations could be brought about by relaxing the accommodation, and that the auditory hallucinations—voices—were usually heard in the right ear—the one more seriously affected.

But the occurrence of secondary sensations, such as described in the foregoing cases, are perhaps not the usual ways in which we see hallucinations manifest themselves. In the cases cited thus far there have been evidences tending to show that the sensory current arising in the periphery was shunted, to a greater or less extent, into another sensory field, as in Cases I. and II., taste olfactisms; in Case III., light phonisms; and in Case IV., sound photisms. It is more usual to find, however, that the secondary sensations that go to form the hallucinations arise in the same sensory field as that in which the hallucination is perceived, and its origin is then found to be dependent upon stimulation of the corresponding sense organ. Thus the humming, buzzing, singing subjective sounds of otitis media give rise to the hallucination of voices or floating bodies in the vitreous are seen as faces and the false perceptions—rather illusions than hallucinations in the sense of Esquirol—are said to be of entotic or entoptic origin, as in the following cases:

*Case V.*—D. F., female, age forty-three, diagnosis paranoia. Came to hospital with history of persecutory delusions and auditory hallucinations, and is said to have threatened suicide. The principal delusion she had on admission, and the one that has persisted ever since, is that there were "talking machines" on her head, and she was continually annoyed by them. She says she frequently hears voices talking to her and can understand what they say. She has heard these voices for a long time, but of late never hears them unless she lies down, although she says that before coming to the hospital she used to hear them while up and about and engaged in her ordinary household duties.

Patient thoroughly believes in the reality of these voices. She also has vague persecutory delusions connected with what she sees. She will cover up her head when lying in bed to shut out the sight of those who walk by her room door. Every motion such persons make, as, for instance, scratching the head, putting the finger to the mouth, etc., is interpreted as having some reference to herself. The exact significance of the signs, however, she does not know. She says, further, that she does not enjoy entertainments because every one there knows what comes into her mind. People know her thoughts as soon as she thinks them. The machine that used to be put on her head read her thoughts. She used to stuff a hand-



kerchief into her mouth to prevent herself from talking so others could not know her thoughts. She says she must have said things, for she often felt her lips move, but tried to prevent them from moving, as above, but could not. When her lips moved she talked. She does not intend to talk, but the first thing she knows her lips move and every one acts as if she had said something that was not right.

As patient stated she heard voices usually only when lying down she was requested to lie down, first on one side and then on the other, and it was discovered that the voices were only heard in the under ear; the ear which was closely applied to the pillow. In this position she heard a man and woman crying—they sounded like her brother and sister. She also heard the sentences: "Nobody to blame but yourself," repeated by a woman's voice, and "Johnny is here."

She heard both the crying and the words at different times in each ear. While she was hearing the sentence, "Johnny is here" being repeated, she was asked to press the tragus of the ear in which she heard the voice well down upon the entrance to the auditory canal and observe the result. The voice was just as distant as before, but appeared to be somewhat differently located.

From time to time this patient has complained that something was placed in her food. In answer to inquiries concerning this point she stated that she was led to the belief because, after partaking of a meal, her mouth was dry and smarted and tasted bitter. She did not have this bitter taste while eating, only afterwards. Examination showed her to be able to distinguish ordinary tastes (sweet, sour, bitter and salt). Her tongue, however, was coated and her lips dry, and while being examined she stated that she had that same smarting feeling in her mouth which she described as having led her to the belief that something was in her food, although it was fully three hours after her last meal. She had no idea that she had been poisoned, but thought that medicine had been given her in her food.

Naso-pharyngeal and aural examination gave the following results:

*Nose*.—Perforation of septum 1 cm. in diameter through the cartilaginous portion.

*Naso-pharynx*.—Chronic inflammation of mucosa of the vault and posterior wall with hypertrophy about both Eustachian tubes.

*Ear*.—Complains of ringing in the ears but not as much as formerly. Has vertigo, which comes on suddenly. She describes this by saying she feels as "if the side of the house was coming toward me and I have to lie down," and feels as "if drunk and I must steady myself." There is no history of pain or injury or sign of abscess or discharge.

Inspection of the external ear shows retraction of both membrana tympani. The right cone of light is shortened by one-half, the left by two-thirds. On the left side the membrane is attached to the promontory of the malleus.

On both sides Shrapnell's membrane is thickened and opaque. Weber's test gave better hearing in the left ear. The Schwabach test gave the following results:

Left Ear.			Right Ear.		
C <sup>4</sup> air	conduction	27 sec.	C <sup>4</sup> air	conduction	16 sec.
" bone	"	8 "	" bone	"	9 "
C <sup>2</sup> air	"	37 "	C <sup>2</sup> air	"	40 "
" bone	"	22 "	" bone	"	21 "
C <sup>0</sup> air	"	18 "	C <sup>0</sup> air	"	22 "
" bone	"	8 "	" bone	"	8 "

The results of this examination, given above, confirm the diagnosis of internal ear trouble together with chronic otitis media. The condition of the naso-pharynx being contributory to the trouble with the ear.

The presence of middle ear trouble is made conclusive by the appearance of the tympanum previously described, this condition either in part depending upon or at least being aggravated by the hypertrophic condition of the mucosa about the pharyngeal terminations of the Eustachian tubes interfering with the ventilation of the middle ear. Weber's test indicates merely that the two ears are not alike. Schwabach's test, on the other hand, indicates a trouble deeper seated than the middle ear, namely, a disorder of the auditory nerve itself. This is shown by the marked reduction in the length of time the different tuning forks are heard, and also in the reduced ratio of bone to air conduction, especially for the upper and lower limits.

The vertigo from which this patient suffers can safely be put down as due to internal ear disease. While it is true that vertigo does occur with otitis media it is here rather an episodic phenomenon than a constant feature. Tinnitus, when persistent and of long duration, may also safely be considered as evidence of internal ear disease. Even when associated with otitis media it is probable that it indicates functional disturbance of the labyrinth.

We have discovered, then, by our examination of this case, unequivocal signs of a chronic disease of the middle and of the internal ear. A disease which must of necessity maintain the end organ of hearing—the terminal filaments of the auditory nerve—in a constant state of irritation, which irritation we have every reason to believe manifests itself more or less continuously by tinnitus aurium. It is significant, however, that this patient does not complain of a ringing, buzzing, humming or roaring sound in

her head, but she does complain of the "talking machines" and of hearing people crying and of the human voices that constantly address her. If this patient is misinterpreting the ordinary sounds of a tinnitus aurium, and attributing to them the qualities of the human voice then we should expect to find that anything which tended to produce or aggravate the tinnitus would produce the characteristic auditory false perceptions. This we find to be the case. When the patient is asked to lie down and closely apply one ear to the pillow—a position calculated to produce tinnitus, if not already present, or to aggravate it if pre-existent—she immediately complains of hearing a man and woman crying, and also the sentences, "Nobody to blame but yourself," repeated by a woman's voice, and "Johnny is here." These sounds and sentences are only heard by the ear applied to the pillow, whichever one that may be.

In this connection the patient's own testimony on the subject of subjective noises is interesting. She says she used to have a great deal of singing in her ears, but that she has not nearly so much now. She used to think that the spirits produced this ringing. At present the most common subjective sound, aside from actual voices, is a humming. This humming, however, she attributes to human agency. The tendency to delusional explication and misinterpretation of subjective sounds is here clearly brought out.

We have proved in this case, beyond a reasonable doubt, that the origin of this patient's auditory hallucinations is in the end organ of hearing. That the condition of irritation to which the terminal filaments of the auditory nerve has been subjected has been sufficient to produce subjective sensations of the specific character for which that nerve is specially constructed, and that these sensations, arising in this manner, have been falsely perceived by the patient.

A similar condition exists in the next case.

*Case VI.*—M. D., female, married, about 45, diagnosis paranoia, She is kept awake nights by her enemies. They followed her from S—— here, and live on G—— Avenue, city of B——. Their object is to do her all the injury they can and they constantly bother her by "yawling and bawling" through the floors and the walls. These enemies are friends of a woman who interfered



between her and her husband. These voices are heard both day and night, but mostly during the day. She distinguishes the voices of men, women, boys and girls, heard as if coming through the walls or floor. She says she can hear these voices echo way down in her stomach. When the voices annoy her very much she puts her fingers in her ears or presses on the tragus. At night she often stops up her ears by lying on one and putting her finger in the other. Often notices that when she does this she still hears the voices, and so she assumes that they must be talking louder. At times the voices are indistinct, at other times she can understand what they say. It is usually vile, nasty language, which she does not like to repeat. When she hears this and then stops up her ears she has noticed that the words became more jumbled so that she could not distinguish what was said. Thinks that the voices must speak through tubes, inasmuch as she can hear them through the walls and from one end of the ward to the other.

Naso-pharyngeal and aural examination gave the following results:

Patient thinks her hearing has failed for the past two years. Says her right ear seems as if filling up. She attributes this to the pressure on the ear used to keep out the sound of the voices. Complains of occasional attacks of vertigo. It is objective in character and usually occurs when stooping and getting up quickly or in going up and down stairs. Has also had several attacks of vertigo occurring in the morning. When this occurred she kept her bed until it had disappeared before rising. She describes this by saying that she has "a feeling as if I should fall if I were standing." She has ringing in the ears for three or four days when she has a cold in her head. On examination she denied having any entotic sounds, but after repeated listening intently she confessed to hearing a slight ringing sound in the right ear.

*Naso-pharynx*.—There is chronic congestion and hypertrophy of the naso-pharyngeal mucosa, especially about the openings of the Eustachian tubes. Politzerization is accomplished with difficulty. Both inferior turbinated bones are hypertrophied.

*Ear*.—Left drum membrane cloudy and slightly retracted. Right drum membrane normal.

Schwabach's test gives the following:

Left Ear.			Right Ear.		
C <sup>4</sup> air	conduction	17 sec.	C <sup>4</sup> air	conduction	20 sec.
" bone	"	10 "	" bone	"	13 "
C <sup>2</sup> air	"	55 "	C <sup>2</sup> air	"	47 "
" bone	"	25 "	" bone	"	15 "
C <sup>0</sup> air	"	30 "	C <sup>0</sup> air	"	30 "
" bone	"	10 "	" bone	"	8 "

This table shows diminished bone conduction, especially on the right side, and taken in connection with the other symptoms in the

case indicates beginning degeneration of the filaments of the auditory nerve in the internal ear.

During examination I had her hold her hands over her ears, and each time she heard voices. These voices each time were heard as if coming from her right, although she said she heard them in both ears. It is significant in this connection that she usually lies on her right side at night, and that at this time the voices seem as if they came from behind.

Both of these cases show quite clearly that the *origin* of the false perception was due to a pathological process in the end organ. This much is necessary to stamp the experiences with the feeling of subjectivity—of having arisen in the environment. The specific elaboration of this sensory material into perceptions of voices is what is attributable to the central nervous organs.

A wave of consciousness is composed of many elements—presentative and re-presentative, and the sensory elements are both primary and secondary. Normally the focal point, or point of clearest perception, is occupied by the primary, not the secondary sensory elements. Thus in looking at a painting of a beautiful landscape it is the visual perception of the blue sky, the winding river, the green grass that are focal, and not the rippling of the river over pebbles, or the lowing of the cattle pictured in the foreground. These elements in the perception, the secondary sensory elements, are marginal, they do not reach the intensity of the others unless the attention be directly centered upon them to the exclusion of the primary elements.

Just the opposite state of affairs exists in our patients. Neither patient complains of tinnitus, but experiments clearly demonstrate that they both have it, and also that conditions which influence the tinnitus also influence the hallucinations. Normally the primary sensory elements, the tinnitus in these two cases would occupy the focal point of the wave of consciousness, but here we see that they have sunk to a position of marginal value, and the secondary elements have risen in their place, so that an actual effort of attention is required to appreciate the tinnitus at all. In these cases the secondary elements have arisen in the same sensory field as the primary, while in other cases the primary and secondary elements may arise in different sensory fields, as, *i. e.*, in Case IV., the primary elements are auditory, the secondary visual.

A similar condition of affairs is shown in the gustatory field in Case V. The false gustatory perception leading to the belief that medicine was placed in her food being quite clearly due to the condition of the mouth and tongue.

The next case presents false perceptions in both gustatory and olfactory sensory fields.

*Case VII.*—Claims that she smells and tastes blood of people who are killed here. Blood is smelled when the cooking is going on in the kitchen and the odors from there permeate the ward. The blood is tasted at meal time when stews or sausages are being served. Not a case of hallucination.

Throat, nose, tongue, etc., show no abnormal conditions present.

This case is particularly interesting because it is not a case of hallucinations at all, in the sense of Esquirol, but rather, and quite typically, a case of illusions, and yet we see here precisely the same mental process as in one other case, and after all why should we not? It cannot be a matter of vital importance from just what source the sensory stimulus takes its origin, whether from the patient's surroundings or from his end organs, both origins are from a psychological standpoint equally environmental.

The next case illustrates hallucinations of entoptic origin, due to floating bodies in the vitreous, and shown by experiment to be produced also by negative after images.

*Case VIII.*—M. J. C., female, second attack, diagnosis, melancholia. Has the delusion that she is supernatural. That her body is filled with electricity, that she is a supernatural spirit of evil, that she is lost for the hereafter, and her children would some day awake to the knowledge that they were just like her.

Sees visions. Often sees faces against the wall, and they are then bright. Looked at sun the other day, and they were then all dark. Can sit and look out of window, and in a short time can see faces, sometimes eyes, sometimes a chain of faces, or only at times a lot of black dots. Says she thinks that these visions are impressions she has received at some time and are now projected out. Thinks they could be photographed and magnified.

Looking out of window at faces; they look about the same with each eye separately, but plainer with both eyes.

The visions are often described as chains and move quite rapidly at times. The further away they are the larger they are.



I sketched as near as possible the appearance of floating bodies in the vitreous, and showed it to her; she said that what she saw had a similar appearance.

She was asked to look out of the window until she saw the faces. She did so. Faces were in motion. When she looked up or down, or to the right or left, she saw the same faces. They changed their position with the movements of her head.

The next case illustrates well the intimate relations existing between the sensory stimulus and the false perception on the one hand, and the mental state and thoughts of the patient on the other.

*Case IX.*—C. W. W., female. Voices different, but all are of Christ. He, however, uses different voices. Voices are internal. Patient used to think she spoke them herself, because it seemed as if her lips moved. She was told to close her lips tightly, and she heard the sounds just the same. She was also told that the voice came from the left side in the region of the heart, and she has a trembling there when she hears the voice (which she does constantly). Voice sounds as if it came from that direction. The reason she never noted them before was that the facts were not revealed to her until December 20, 1899, when she was sick abed and had numerous communications from Christ, and saw visions of husband's head and Christ's hands which were clasped. He said husband's soul was saved. Saw sleeve of Christ's garment and cuff on husband's wrist, also noted quality of goods of sleeve corresponding to what he was laid out in. Has seen same vision since.

Always sees vision at night in bed with eyes closed. Usually seen before going asleep, but often after awakening during night, but always with eyes closed.

Visions of persons and things in motion, when eyes are closed (only), and usually in the dark—illumination good. Also hears voices, laughter, etc., often in connection with visions. *Visions are invariably associated with auditory hallucinations*, if not at their inception, then shortly after.

*Left Ear.*—Marked retraction of drum membrane; short process malleus and cone of light shortened one-half. Schrapnell's membrane hyperemic and thickened.

*Right Ear.*—Retraction of drum membrane, but not so much as left ear. No hyperæmia of Schrapnell's membrane.

*Nose.*—Negative.

*Throat.*—Chronic naso-pharyngitis and thickening of mucosa about both tubes.

Weber heard better left side (C<sup>1</sup>)

Watch tick, left ear, 54 in.; right ear, 48 in. Voice said she answered just right after completion of above experiments. *Schwabach.*

C <sup>4</sup> air	L. E.	20 sec.	C <sup>4</sup> air	R. E.	22 sec.
C <sup>4</sup> bone	" "	10 "	C <sup>4</sup> bone	" "	10 "
C <sup>2</sup> air	" "	60 "	C <sup>2</sup> air	" "	45 "
C <sup>2</sup> bone	" "	31 "	C <sup>2</sup> bone	" "	29 "
C <sup>0</sup> air	" "	37 "	C <sup>0</sup> air	" "	28 "
C <sup>0</sup> bone	" "	24 "	C <sup>0</sup> bone	" "	11 "

Said that heard voices while tuning fork was being used in these tests.

Cotton in left auditory meatus, hand held over right, says hears voices tell her she better go see sister-in-law.

Sister-in-law was waiting in reception room for her.

Voice said to tell me that voices did not come from head when C<sup>0</sup> was held to left and C<sup>1</sup> to right ear. Experiment repeated; voice said, "Take your father's advice and do the best you can, and you will come out all right."

Experiment repeated, no voice.

Experiment repeated, no voice.

Experiment repeated. C<sup>0</sup> to left and C<sup>3</sup> to right ear, voice said, "Go right on C—— W—— and answer Dr. White's questions and he will aid you."

Experiment repeated, voice said, "I will help you to answer the questions readily to Dr. White without the tuning forks, they have nothing to do with this case."

Experiment repeated, "He said not a word more as long as uses those, for they are of no avail."

Experiment repeated, voice said, "Ha! Ha! isn't it comical. Dr. White using those." Patient laughed.

Experiment repeated, heard word, "nothing" repeated regularly at regular intervals.

I tried this experiment on myself and the nurse, and found that I had unintentionally been moving the forks, for with my greatest efforts to hold them still the sounds nevertheless came in beats to the nurse's ear.

Experiment; same forks to same ears, but C<sup>3</sup> was regularly withdrawn. Patient said heard word "nothing" continuously and regularly repeated, and when asked to repeat it herself reproduced the same time intervals I had made with the forks.

C <sup>3</sup> air	L. E.	70 sec.	C <sup>3</sup> air	R. E.	74 sec.
C bone	" "	29 "	C bone	" "	35 "
C <sup>1</sup> air	" "	34 "	C <sup>1</sup> air	" "	19 "
C bone	" "	8 "	C bone	" "	10 "

During all experiments heard word "listen" repeated. It is noticeable that the tone of the forks resolves itself in about the same intervals as the word listen repeated.

That the central disturbance is a necessary factor in the peculiar interpretation of the sensory stimulus is shown in the next case.

*Case X.*—M. M. Diagnosis, acute alcoholic insanity.

*Right Ear.*—Drum membrane slightly opaque.

*Left Ear.*—Same, even less.

*Nose.*—Both middle turbinated bones touch the septum.

*Throat.*—Normal.

Weber heard longer in left ear.

*Schwabach.*

C <sup>4</sup> air	L. E.	23 sec.	C <sup>4</sup> air	R. E.	14 sec.
C <sup>4</sup> bone	" "	15 "	C <sup>4</sup> bone	" "	14 "
C <sup>2</sup> air	" "	44 "	C <sup>2</sup> air	" "	38 "
C <sup>2</sup> bone	" "	16 "	C <sup>2</sup> bone	" "	19 "
C <sup>0</sup> air	" "	27 "	C <sup>0</sup> air	" "	24 "
C <sup>0</sup> bone	" "	14 "	C <sup>0</sup> bone	" "	13 "

Schwabach shows with C<sup>4</sup> that air conduction is diminished, indicating otitis media; while C<sup>2</sup> shows general diminution of perceptivity. The nares and pharynx being so clear the hearing is not so good as it should be at her age (about 45).

When this patient was admitted she was suffering from auditory hallucinations and persecutory delusions. These soon cleared up when the above examination was made. The conditions found were similar to those found in other hallucinated cases. Quinine was given in sufficient doses to produce marked cinchonism with tinnitus, but there was no tendency to hallucination. The sounds were appreciated at their true value. The central receiving apparatus had returned to a normal state.

The ten cases cited lead naturally to four conclusions.

First.—Hallucinations are false perceptions. To have a false perception there must be something to perceive, and that something is in the environment and can only enter as a factor into the mental life through the intermediation of sensations. Ideas cannot be perceived.<sup>13</sup> "Were that the case the course of internal and external worlds would have become confused and confounded, man would have become the dupe of his own ideas, the world a gigantic madhouse."

Second.—Hallucinations are secondary sensations either arising in the same sensory field, in which case they might be described as illusions in the sense of Esquirol, or arising in other sensory fields, in which case their secondary character is quite clear.



Third.—The mental state in illusions and hallucinations is identical.

Fourth.—Given the sensory elements the falseness in their perception is due to central derangement.

The several theories of hallucination which have from time to time been exploited, particularly those that attribute their origin solely to centric disturbance with reverse currents in the sensory nerves go a long way around, and take great pains to find an explanation, which in reality exists close at hand. Titchener<sup>15</sup> estimates that there are more than 44,435 elementary sensations, or sensation qualities, appreciable by the various sense organs, and says, "Each one of these forty thousand qualities is a *conscious element*, distinct from all the rest, and altogether simple and unanalysable. Each one may be blended or connected with others in various ways to form *perceptions* and *ideas*. A large part of psychology is taken up with the determination of the laws and conditions which govern the formation of these sensation complexes." Surely with this wealth of material, this abundance of the very elements that go to make up perceptions, it seems hardly necessary to strain a point to look elsewhere for additional material.

True, it often happens that the sensory elements of perception in whole or part have but a marginal or subconscious value. But because they may have been displaced from the focus of clear perception, relatively or absolutely, because perhaps they cannot be replaced except by a special effort, or perhaps not at all, they are none the less real. Many sensations are normally not appreciated at all, either because of their weakness or because of the preponderance of some other sensations. In fact, this is an absolutely necessary condition for mental concentration. If it were otherwise and all sensory impulses were appreciated at their full value, coherent thought would become impossible. The odor of the flowers on my study table is no longer appreciated when I become absorbed in a book, and yet it is quite conceivable that it may enter as a factor into the formation of my mental state at the time.

Thus it is that sensations that under ordinary circumstances would hardly, if at all, rise above the threshold of consciousness, for some reason or other acquire an unusual value, and being thus out of harmony with the actualities they represent, a false

perception is the result. This is especially well shown in the phenomena of dream consciousness. Here all manner of sensory impressions which would find no place in waking consciousness find a fictitious value, not because of their increased intensity but because the ordinary sensations that occupy the waking consciousness are in abeyance.<sup>16</sup> "Thus Weygandt dreamt on one occasion that he was looking at 'living pictures' under magnesium light, and found on awaking that the sun had just burst from behind the clouds; while Hammond mentions a gentleman who dreamed of being in heaven and was dazzled by its brilliancy, finding, when he awoke, that the smouldering fire had kindled into a bright flame, the light from which fell on his face." This explanation is particularly applicable to the organic sensations, the coenesthesia which acquire an added vividness in dream consciousness, because of the shutting off of the ordinary avenues of sensation. We all know, too, how easy it is to appreciate sensations from any part of the body when our attention is fixed on that part to the exclusion of all else. Many of the cases with delusions that animals are in the abdomen, the bowels are stopped up, the brains have been removed, can be explained in this way, especially those cases that show a connection between some pathological process as endometritis, chronic gastric catarrh and the like, of which there are so many.

It is necessary, however, in order that the particular sensory stimulus receive the specific interpretation that stamps it as an hallucination that there be a certain state of "preparedness" on the part of the mind. The mind of the patient with tinnitus aurium who hears a voice is especially attuned to respond in that particular way. To the untrained ear the sounds that emanate from a full orchestra constitute one immense, unanalysable volume, but the musician can instantly differentiate the high, strident notes of the oboe, the sigh and wail of the cello, the deep sonorousness of the double bass, and the blare of the horns, and as the music proceeds the slow solemnity of an adagio being replaced by the vivaciousness of an allegretto, the composer fairly speaks forth his thoughts, his feelings, his very soul to the listener. It is the old experience over again of finding what is sought. The student looking into the microscope for the first time invariably sees what the master tells him is there. What wonder then that the paranoiac, harrassed

by all manner of suspicions, trusting no one, feeling that all are leagued together to accomplish his ruin, suffering from almost continuous entotic sounds, should sooner or later begin to single out from this constant jumble of buzzing, humming, and ringing the voices of his enemies.

Many more cases might be cited by way of illustration of the various points brought out in this paper which I am afraid is already unduly long. I wish only to add that I have never yet failed to find a peripheral pathological process in all hallucinated cases I have examined which could explain directly or indirectly the hallucinatory phenomena. It is, of course, not necessary that a peripheral process be pathological in order to account for a hallucination, as witness the dream hallucination and the hypnotic hallucination, but it is hardly conceivable that the auditory hallucinations of a paranoiac which are practically constantly present unless the patient's attention be distracted, could be produced by other than a constant irritant, which, of course, would necessarily be pathological in origin.

The necessity of a most careful and painstaking examination of all hallucinated cases is apparent, especially when we remember the multitudinous possibilities of arousing secondary sensations in other sensory fields. Not only sound photisms, light phonisms and similar combinations in the regions of the special senses are known, but the much more obscure region of the coenesthesia is sometimes involved, and Grüber<sup>17</sup> has described colored temperature, colored movement, colored resistance, movement hearing, temperature hearing, resistance hearing and many other combinations equally complicated. With all these possibilities in mind I would be loath, indeed, to accept other than a peripheral explanation of any hallucinated case.

<sup>1</sup> Esquirol, "Sur les illusions des sens chez les aliénés," *Arch. gen.*, 1832.

<sup>2</sup> W. Griesinger, "Mental Pathology and Therapeutics" (Trans.) New York, 1882.

<sup>3</sup> D. Hack Tuke, "A Dictionary of Psychological Medicine" (1892).

<sup>4</sup> Von Krafft-Ebing, "Die Sinnesdeliren," Erlangen, 1864. Also "Lehrbuch der Psychiatrie."

<sup>5</sup> T. H. Kellogg, "A Text-Book of Mental Diseases," New York, 1897.

<sup>6</sup> Th. Meynert, "Ueber die Gefühle," "Sammlung von populärwissenschaftlichen Vorträgen über den Bau und die Leistung des Gehirns."

<sup>7</sup> Edmund Parish, "Hallucinations and Illusions," New York, 1897.



<sup>8</sup> L. Schlager, "Ueber Illusions in Bereich des Geruchssinnes," etc., Wiener Zeitschr., N. F. I. 19, 20 (1858).

<sup>9</sup> Lazarus, "Zur Lehre von den Sinnestäuschungen" (1867).

<sup>10</sup> Binet, "L'Hallucination," Revue Philosophique, April, May (1894).  
Binet and Féré, "Animal Magnetism," Eng. Trans., Internat. Sci. Series, New York, 1898.

<sup>11</sup> William James, "The Principles of Psychology," 1890.

<sup>12</sup> J. Hoppe, "Der entoptische Inhalt des Auges und das entoptische Sehen," etc., Allg. Zeitschr. f. Psych. (1887). "Erklärung der Sinnes-tauschungen," etc. (4th Edit., 1888).

<sup>13</sup> "An Inquiry into the Nature of Hallucinations," Boris Sidis. Psych. Review, Jan. and March, 1904.

<sup>14</sup> Cited by Hyslop in "Mental Physiology," Phila., 1895.

<sup>15</sup> "An Outline of Psychology," by E. B. Titchener, New York, 1899.

<sup>16</sup> "Sleep: Its Physiology, Pathology, Hygiene and Psychology," by Marie de Manacéine. Contemporary Sc. Series, New York, 1899.

<sup>17</sup> "L'audition colorée et les phénomènes similaires," International Congress of Experimental Psychology, London, 1892. Cited by Hyslop *op. cit.*

## Society Proceedings

### CHICAGO NEUROLOGICAL SOCIETY.

March 24, 1904.

The President, Dr. Sidney Kuh, in the Chair.

*Unilateral Serratus Palsy*—Dr. Alfred C. Croftan presented a case of this kind, with possible spinal myosis. The patient had a history of exposure to cold while working at the stock yards, where, in a steam-room, the temperature was alternating hot and cold. In October he had an attack of what he termed "general rheumatism," lasting for three days. He recovered and went to work, but at the end of five hours' labor was forced to quit on account of inability to raise his arm. His occupation necessitated his holding hides and giving them a vigorous shake, raising them high up to do this. Dr. Croftan said that when the man first came to him the scapula projected considerably. Careful examination elicited nothing further save a considerable increase in the reflexes on the same side, and an inequality of the pupils, which Dr. Croftan considered to be a spinal myosis. Accommodation to light, etc., had not been determined. The patient had improved remarkably under somewhat large doses of iodide of potassium. The question for determination was as to whether the lesion were local and peripheral, or spinal. Dr. Croftan was inclined to think the latter was the case. There were no sensory disturbances and absolutely no evidence of syphilis. The onset was very sudden. Dr. Croftan said he had told the class it was a spinal lesion between the fifth cervical and first dorsal. There was no temperature disturbance.

In the discussion following, Dr. Patrick showed pictures, and described the case of a young man of 20, who, while practicing the swing on the horizontal bar, in preparation for some turner's exhibition, had suddenly developed paralysis of the serratus—he did not know just how rapidly it had come on. It was probably the drawing up of the shoulders and the pressing of the clavicle against the nerve that caused the paralysis, but Dr. Patrick did not think this a very good explanation, because the posterior thoracic nerve is supposed to pass beneath the brachial plexus, and if one is to explain this symptom by pressure on the clavicle, it is reasonable to suppose the plexus would be involved to even greater extent. There is a doubt whether it might not have been caused by a pinching of the nerves, as swinging by the arms would be entirely a pulling and not a pushing. The boy was prevented from exercising and recovered. Many cases had been reported from carrying weights on the shoulders, and from occupations involving violent motions of the arms; also in painting ceilings and reaching over the head to accomplish this; but this would give a different muscular action, that of pushing up, thus straining the serratus.

Dr. Lodor suggested that the muscular effort is the same, whether pushing or pulling, that is, rotation or prevention of rotation of the scapula. Many piano movers are affected, where one man acts as a pivot and the piano is turned on his shoulder.

Dr. Harold N. Meyer called attention to the fact that the case was like a case of unilateral amyotrophic lateral sclerosis exhibited by him two months previously. This would account for all the lesions he said. The fact that the paresis had involved the serratus more than the other muscles was significant. There were the fibrillary contractions, the increased myotatic irritability, and, to his mind, a complete picture of lateral sclerosis. The possible factor of syphilis would account for any kind of a picture, and would show why improvement was made under anti-specific treatment.

*A Case of Syphilitic Spastic Spinal Paraplegia.*—Dr. Charles L. Mix presented this case. He said the patient, a Welchman, 43 years of age, was a perfect illustration of Erb's type of syphilitic spastic spinal paraplegia. For ten years he had been afflicted with his present malady, which began five years after a specific chancre. The onset of his disease was with sensory disturbances, chiefly algesic and paresthetic. In two or three years a progressive weakness and stiffness of the legs followed, and great exaggeration of the patellar reflexes and the presence of double ankle clonus. Dr. Mix said that at the present time he showed areas of slight disturbance of tactile sensation, chiefly in the right leg, though to some extent in the left, and that it was impossible accurately to map out these areas. The sensory impairment included tactile, algesic and thermal sensations. The reflexes were grossly exaggerated, especially noticeable in the patellar and tendo-Achillis reflexes. Ankle clonus was present on both sides, and patellar clonus, though absent now, was recently to be demonstrated. There was also a double Babinski reflex, so easily elicited that pinching the calf was sufficient to call it forth in either foot. It was noted that a large amount of strength remained, there being merely a reduction and by no means a paralysis of motion.

The bladder had long given the patient trouble, retention and inability to start the stream being the chief signs. There had been rectal incontinence during casual periods of diarrhea. From the negative point of view Dr. Mix said the entire absence of muscular atrophy, fibrillary twitching, tremor, disturbed pupillary reflexes, cranial nerve impairment, involvement of the nerves of the neck, arm or trunk, were all noticeable. The case was, therefore, a pure example of Erb's syphilitic spastic spinal paraplegia.

*Chronic Hereditary Trophedema.*—Dr. Harold N. Moyer exhibited this case. He said there was no doubt about the rarity of the disease. Meige, in 1890, had exhibited a similar case before the French Neurological Society, and in 1892 deBove published a case in *La Presse Médicale*, under the title of Segmentary Edema. Dr. Moyer had seen one other case of the disease five years ago, and this was confined to the upper extremity; he regretted that he had not put the case on record.

Dr. Moyer's present case was that of a young lady of 32 years of age, of good history. She had not had any sickness since she had had the children's diseases. The enlargement began about twelve years ago, just above the shoetop. She never had had any pain or discomfort. The swelling began after a sprain, but it was not known that the sprain caused it. The same disorder began in her mother about eight years ago, and was like the condition in the present case, except that the swelling did not extend above the knee. The patient had been active all the time, attending to her duties as school teacher, and able to walk long distances. There was a difference in the calf measurements of five inches. The skin seemed perfectly normal. Dr. Moyer said it was probably not an edema, but a trophic disturbance. There was no pitting of the skin and no fluid. There was a uniform enlargement of the whole lower extremity from the crest of the ilium to the foot. There seemed to be an increase of body of the entire muscular system. The speaker said it was not, in a certain sense, a disease. All that was complained of was muscular hindrance. There was no central disturbance, and the thyroid was present. Some tablets the patient took (probably thyroid extract) sent the heart-beat to 122-124, and these were not used again.

Dr. Croftan asked whether it were possibly a phlebitis, but Dr. Moyer considered it was too slow and too diffuse for this. There was no disturbance of the circulation, nor enlargement of the veins. He did not know whether the bone was enlarged, and stated further that no pathology was known, because there had been no examinations. The cases are very rare.



# Periscope

## ARCHIVES DE NEUROLOGIE

(Vol. 17, 1904, No. 97, January.)

1. Cerebral Tumor, with Abolition of Tendinous Reflexes. F. RAYMOND.
2. Contribution to the Study of Catatonic Dementia. W. A. MOURATOFF.

1. *Cerebral Tumor*.—There exist, says the author, in even the best known and most "dug up" subjects, special and sometimes very important points, not as yet sufficiently brought into view and to which attention should be called. The case of the patient before us is a proof of this. The symptomatic picture is a speaking one. I may say at once it is a case of cerebral tumor. But we find besides in this patient some phenomena which the cerebral tumor does not suffice to explain. It is upon these phenomena, their clinical, pathogenic and anatomo-pathologic significance that I shall insist. The author sets forth in full detail the symptoms of the patient in the order of occurrence, and these he sums up as follows: Her affection began about three months ago with vertigo; soon appeared successively three important signs, headache, vomiting of cerebral type, diplopia. In the course of the two months past the ocular troubles have rapidly aggravated and ended in amaurosis, and at the same time there was established a total bilateral ophthalmoplegia; at the same time on the side of organs of sense came anosmia almost complete; as to the face, inferior right facial paralysis; as to the limbs, a generalized paresis, more clear in the region of the upper right limb, and lastly, hyperesthesia of the right half of the body. This tableau justifies fully the diagnosis of cerebral tumor. Indeed, that persistent headache, by day and by night, the ready vomiting, the vertigo show at once the direct irritation and disorganization of a nervous territory; and, above all, the diminution of the space in an inextensible cavity—the cranium box. These are signs of cerebral compression, and I find the sign manual of that compression, characterized by the increase of the pressure of the cephalo-rachidian liquid, in the results of the ophthalmoscopic examination, which shows the existence of a papillary stasis. The anosmia, if demonstrably recent, should be considered as a phenomenon of compression. It is more difficult to determine the seat and nature of this tumor. I think the signs point to a peduncular lesion and that a tumor solely suffices to explain the observed phenomena. As to the nature of this tumor, being granted the hereditary and personal tuberculous antecedents of the patient, I am not indisposed to believe that we have a large single tubercule, but here the greatest reserve is *de rigueur*. (In a note it is here stated that the patient died. She had a sarcoma of the right inferior optic region, with compression of the corresponding cerebral peduncle and contiguous corpora quadrigemina tubercles.)

It appeared in the history that the patient was a young woman of the age of twenty-four, in the business of feather seller. Her mother died of pulmonary disease; from eight years of age she had hip joint disease, with arthritis of left knee. She was married at twenty; her husband soon after died of tuberculosis. After four years she remarried; was never pregnant. We thus have a triple suggestion of tuberculosis: hereditary, personal, the coxalgia, conjugal; exposed to contagion in caring for her first husband.

"I particularly underline for you as a very interesting clinical symptom the loss of tendinous reflexes, in the region of both interior and superior

members. What is the signification? It cannot be tabes. I think I can demonstrate that this abolition of the reflexes arises from the cerebral tumor, and that it is due to the medullary compression which accompanies cerebral compression."

The author concludes by saying that the great "revelator symptom" is the at first diminution, then abolition of the rotulian and Achillean reflexes, and, besides, the reflexes of the superior members are quite often diminished. The state of the cutaneous reflexes appears to have little symptomatic value. We may observe at times some motor troubles; also the hand hesitates at times before seizing an object, but all these symptoms are very casual, and may in great part be due to modifications of cerebral tension. But the troubles of sensation are more accentuated, more directly imputable to lesions of posterior radices and cords. Thus patients may recognize pains coming on with veritable paroxysms in the lower members and also in the region of the nape of the neck, with irradiation along the arms without very constant topography. But the patients do not suffer, we are quite certain, as much as tabetics. Frequently we observe zones of hypoaesthesia in all the modes of sensibility, predominant in the region of the superior members along the inner side of the forearm and the arms. It is to these phenomena that *medullary compression*, following cerebral tumors, is reduced in all the cases observed at Salpêtrière for three years past; never have we recognized, in spite of frequent and minutely careful studies, the existence of the pseudo-tabetic syndrome (sharp pains, ataxy, etc.), such as has been described in some observations, moreover, quite rare. When you meet, in the course of cerebral tumors (the word being taken in its general sense), the abolition of the *tendinous* reflexes on the side of paralyzed members, even of those which are not, do not allow yourselves to be impressed by this apparent anomaly—the exaggeration of these same reflexes, at least on the paralyzed side, being the rule—that will signify that the posterior cords are altered probably by the mechanism that I have explained to you. This authentication is very important in prognosis, for it implies an enormous exaggeration of the pressure of the cephalo-rachidian liquid, and indicates the gravity of the disorders caused by the tumor.

2. *Catatonic Dementia*.—The author discusses the question whether catatony is a morbid entity, or whether it is a clinical symptom-complex, which enters into the most varied psychic troubles.

In 1874, Kahlbaum, basing himself upon twenty-six clinical investigations and seven autopsies, established a new morbid form, to which he gave the name of *catatony*. "Catatony," says K., "is a malady of the brain, with circular course, in which the psychic symptoms present consecutively a tableau of mania, of stupor, of mental confusion and of dementia. Yet, sometimes, one or another stage of psychic trouble may fail. Together with the psychic symptoms there exist also phenomena, motor troubles of a convulsive character." K. includes the following:

1. Habitual stereotypic poses.
2. *Flexibilitas cerea*; that is the prolonged keeping of one attitude of the body or of one extremity, such attitude artificially given to the patient (catalepsy).
3. *Negativism*: resistance to exterior excitation.
4. *Verbigeration*: pronunciation of single words, without connection or sense, or the repetition of a single word with an expression as if it were sensible speech.
5. *Attonity*: immobility for a longer or shorter time.

The opinions of the authors may be divided into three groups: Some of the authors do not regard the syndrome of K. as independent. They find that we meet it in divers psychic maladies, as a complication of one or another typical form of mental malady. A second set recognize the



complete independence of catatony after the type of K. And the third, while admitting the independence of the form in question, give another interpretation to the symptoms and trace otherwise the cardinal symptoms. Kräpelin, in the last editions of his manual, agrees with K., and defines catatony as "particular states of excitation, passing into stupor, consecutive dementia, with confused deliriant ideas, sensorial illusions, phenomena of stereotypy and of suggestion in the acts and external conduct of the patients." Schüle defines pure catatony, in a grave form, as presenting essentially a primary dementia (often hebephrenic), or a degenerative psychosis, periodic circular, modified by catatonic phenomena. As to its etiology, Schüle especially insists upon the morbid heredity of catatonics. The author gives at length three observations: One of a young man of twenty-six, locksmith by trade; another of a gentleman of thirty-three, and the third of a young married woman of twenty-one, and discusses each case and then asks: What is the signification of catatony as a morbid entity? This question admits, he says, of different solutions, depending upon what basis we take in the division of maladies. The criterion of "independent form" assumes an importance relative to the degree of the scientific study of one or the other specialty. In general it is composed of:

1. A definite clinical tableau and with a typical and constant progress.
2. A definite anatomic-pathologic substratum.
3. A distinct etiology.

Concerning the etiology it is not yet definitely determined. Fehige finds a constant etiology in the auto-intoxication of the organism by the sexual products, under conditions of abstinence in men and likewise in women. The author says that there is no proof positive in favor of this opinion, and that against it are the following facts: 1. In women having regular menstruation there is no inhibition; 2. The greater number of catatonic men are obstinate onanists; 3. Catatony is far from appearing in all persons deprived of sexual functions; whilst the constancy of the development of the malady, in conditions of inhibition of toxic in the organism, is typic in all toxic cases. The author agrees with those who attribute catatony to a *degenerative soil*. In the first two observations the degenerative soil is, he says, indubitable. But, *per contra*, we still come to this conclusion, basing ourselves upon combinations of general character. In favor of this there is, first, the connection of catatony with the forms of hebephrenic dementia; second, the possibility of the remittent, and also, as facts show, of the periodic course of the malady. These particulars indicate that certain cardinal conditions provoke the malady in question. On the clinical side the enemies of the independence of catatony make two objections: 1. The existence of catatonic symptoms in other mental maladies; 2. The failure of organic connection in isolated catatonic phenomena. The first objection has little importance, for both symptoms depend upon the localization of the functional troubles and upon trouble of reciprocal activity in both centers. \* \* \* The second objection is more grave. But then, does the catatonic symptom-complex present only an occasional coincidence? We think not. In the first two observations a certain group of troubles of the activity of voluntary innervation, expressing themselves without alteration in all psychomotor acts, disclose the determinative symptom.

In estimating the general results of different authors and of our personal observations, we are led to believe that there exists in the course of catatony a certain definite variation of symptoms, with constancy of one cardinal symptom and with a constant terminal issue. It is another question whether we may regard catatony as an independent nosologic group, or as a clinic form, which enters into another more vast group of maladies. As yet we are unable to give a definite response to this question. We must say that we ought to act with much prudence in laying down



in psychiatry new independent nosologic groups, seeing the variance of commentaries upon clinic data, and seeing the indetermination of the nosology and etiology of psychic maladies. Outside of a quite moderate number of toxic forms, parainfectious and degenerative, we, in other cases, recognize only clinical complexes, determined and with determined course. In this point of view *catatony is a morbid entity*. The beginning, so to speak, of the nosological determination of catatony has already been given by K. himself, who associates it with "hebephreny," that is to say, with degenerative psychoses in adolescents, passing into dementia. Later, Kræpelin and Schüle associate, in a manner still more decided, catatony with the group of psychic degeneracies. In fine, it is very probable that this lesion, in its turn, basing itself upon its clinic type, may enter into a vast group of psychic degeneracies and present among them a morbid form, the clinical limits of which, recognized for the first time by Kahlbaum, ought to be submitted to a study and a development more detailed.

(A bibliography mentioning twenty-six authors is added; all but two in German; the two in French, by Popoff and Serbscy.)

RICHARDS (Amityville).

#### JOURNAL DE NEUROLOGIE

(Vol. 9, 1904, No. 1.)

1. Physiological Theory of Hysteria. P. SOLLIER.

2. Permanent Dysarthria in an Epileptic Child. O. DECROLY.

1. *Physiological Theory of Hysteria*.—After briefly reviewing the psychological theory of hysteria of Janet, which he finds unsatisfactory, the author proceeds to expose his own physiological theory. He starts out with the statement that hysteria is a disease of the brain, probably of the cortex, in which he thinks everyone will agree. The postero-lateral part of the brain contains all the sensitive-motor and sensorial centers, and in it the viscera are represented. While the functions of the anterior part of the brain are not well made out, there is reason to believe that in the frontal lobes are located the psychical processes, apperception and synthesis. This region is closely connected with the other parts of the brain by association tracts. Each impression, sensitive, sensorial-motor, or cenes-thesic acting upon its proper center gives rise to a certain molecular state, to which corresponds a special dynamic condition which reacts upon the other centers. The combination of dynamic states of different centers produce in the brain a particular dynamic condition distinct for each movement for each successive grouping. These dynamic groupings constitute our personality. Each time the same dynamic state occurs in the anterior brain it will determine in the organic centers a state analogous to that which originally gave rise to it, hence revival of past conditions, particular or general, recrudescence of a past personality. Suppose, now, there is an arrest of function, an inhibition of one or more centers, for instance, of a motor center? A stimulus coming from one of the higher or psychical centers no longer sets this motor center into action, hence there is paralysis. If the same process occur in a sensorial or visceral center there will be anesthesia, since an excitation coming from the periphery can no longer produce an effect, as it is halted in its passage to the psychical centers. Suppose again that a certain center is inhibited while its molecular condition corresponds to a certain sensation, a certain representation in the highest centers? This molecular state persisting, the representation corresponding to it remains equally persistent, hence the fixed idea. Lastly, suppose that part of the centers are inhibited while the rest continue to functionate? From the consciousness of the subject the action of the former will be excluded, and there will be in consequence alteration of personality—double consciousness. Suggestibility the author considers as

a symptom due to lack of counteraction between different centers. Some centers being inhibited while the others are subjected to an excitation, there is no—or only feeble, reaction of opposition from the former centers, and no association of ideas of contrast or similitude is possible. Hence there is no control, and the uninhibited centers act in a rapid and, as it were, a reflex manner. All these phenomena the author thinks are the effects of the cortical disturbance constituting hysteria, which he regards as a sort of partial sleep or benumbing of the brain. What he regards as the proofs of this he proceeds to bring forward. The appearance of hysterical patients, their somnolence, their revery, their somnambulism, their statements that they do not know whether they sleep or not, their change of aspect and activity when they are completely roused, and finally the presence of anesthetics, he considered as bringing strong support to the correctness of his theory. Having been struck by the persistent insomnia of hysterics, he concluded that they did not sleep normally, because they were constantly in a condition of pathological half sleep. To prove this he used two measures. (a). Waked them by a sudden excitation as if they were truly asleep. (b). Hypnotized them profoundly and interrogated them. He mentions here an experience of Charcot, who, taking an hysterical subject having total anesthesia and amnesia for the whole period of her life except the last five years, energetically enjoined on her several times to wake up, and by this succeeded in bringing on an attack (convulsive?), upon coming out of which she appeared to be transported backwards five years, remembered all her past life except the period of the last five years (insisted that she was thirty-two instead of thirty-seven years old), and showed hemianesthesia instead of complete anesthesia. Repeating the same experiments in similar cases the author succeeded in causing the same return to the personality of several years back, with similar modification of memory, sensation, etc. Carrying the experiment still further he rehypnotized the patients, and upon reawakening them he succeeded in reproducing the condition obtaining at the start. His methods he proceeds to detail, also answers objections to his theory. As to just what causes the cortical inhibition necessary to his view he is unable to say, but seems to lean to the idea of some sort of intoxication, possibly in some cases by carbonic acid.

2. *Permanent Dysarthria in an Epileptic Child*.—History of a case of epilepsy supervening after pertussis in a child four years old, which presented a peculiar chopped off stammering and hesitating speech, not unlike that observed in general paresis. Amelioration of the general condition of the patient under bromides, iodides and mercury. The author thinks that the point of departure of the cortical irritation producing the fits may be in the language area, and on account of the improvement under mercury and KI. that a syphilitic origin is possible.

(Vol. 9, 1904, No. 2.)

1. An Unusual Case of Facial Paralysis. A. BIENFAIT.

2. Observations on Manic Depressive Insanity. M. THOMPSON.

1. *An Unusual Case of Facial Paralysis*.—A case of paralysis affecting the three branches of the right facial nerve, accompanied by vertigo, ear noises and deafness on the same side, also with slight mydriasis of the pupil and a prominence of the right eye. Careful examination showed no middle ear disease. Analysing the symptoms the author concludes that the seventh and eighth nerves must have been affected by a lesion along their common tract, either within or without the auditory canal. The mydriasis and slight exophthalmus, he explains by reflex affection of the third and tenth nerves.

2. *Manic Depressive Insanity*.—By manic depressive insanity the author understands any case of functional psychosis where depression and ex-



altation are confused in an attack of a certain duration, which repeats itself several times during the life of the patient. Between the attacks there is a period during which the symptoms disappear more or less completely. Kraepelin, while recognizing a simple melancholia at the age of involution, regards both mania and melancholia occurring in young persons as episodic only, and a phase of manic depressive insanity. With regard to mania the author agrees with him, but does not doubt the existence of a simple periodic melancholia (though rare), and gives the history of a case to prove it. Does a case showing a phase of excitement followed by one of depression, or vice versa, belong always to manic depressive insanity, or may such a manifestation occur only once in a patient's lifetime and merit the name of idiopathic double form insanity? Kraepelin thinks it always a phase of manic depressive insanity, though the interval between attacks may extend over a number of years. The author disagrees with this conclusion, and gives sketches of two cases, one of which has remained well for four, the other, for nine years after a single attack. To the question if it is possible to differentiate a case of manic depressive insanity from dementia præcox during the first attack, he replies not always. To assist in such differentiation he gives the characteristics of the stupor of manic depressive insanity on the one hand, and of katatonia on the other. He states that in the first, conception, course of thought and orientation are affected, while in katatonia, the moral reaction, facility of acting and coherence of phrases are disordered.

(Vol. 9, 1904, No. 3.)

1. Cephalic Tetanus with Facial Diplegia. DR. BOUCHARD. L
2. A Constant Palpebral Phenomenon in Facial Paralysis. DUPHY-DUTEMPS and R. CESTAN.
3. Prolonged Pupillary Reaction to Toxics as a Precocious Sign of General Paresis. E. TOULOUSE and C. VURPAS.
4. Lesions of the Eye Ground in General Paralysis. P. RAVIART and P. CAUDRON.

1. *Cephalic Tetanus with Facial Diplegia*.—The case of a man thirty-six years old, an epileptic, who falling in a fit in the garden, sustained a wound involving the whole length of the bridge of his nose. Although this wound was treated antiseptically and healed kindly, six days later there developed trismus with facial paralysis complete on both sides. The patient could at first swallow small quantities of liquids, later nothing at all. In spite of injections of antitetanic serum death occurred in an access of dyspnea on the morning of the sixth day of the attack.

2. *A Constant Palpebral Phenomenon in Facial Paralysis*.—If a patient with paralysis of the facial nerve is requested to look down, for instance, at the examiner's finger, both upper lids move downward with the eye, that on the paralyzed side to a less extent than the other. If now the patient is told to close his eyes firmly, upon his making the attempt, the lids on the sound side are pressed tightly together, the upper lid on the paralyzed side, however, is dragged upward with the eyeball, leaves a gaping palpebral fissure in which the sclerotic alone is visible, and there is slight creasing of the lid just above the tarsal cartilage. This the authors have tested in fifteen cases of peripheral facial paralysis, and find always present. They explain it readily by the anatomical fact that the lids are closely connected by an aponeurotic structure with the superior and inferior recti muscles of the eye. The orbicularis being paralyzed its action as an antagonist is wanting, and the lid follows the pull of the superior rectus, the eye naturally rotating upwards on energetic closure of the lids.

3. *Prolonged Pupillary Reaction to Toxics as a Precocious Sign of General Paresis*.—Toulouse and Vurpas, trying the effect upon the eye of solutions of the strength of 1 to 10,000 of atropine and of eserine, found



that in practice the mydriasis, or myosis, as the case might be, was much prolonged—from two and one-half to three times—over that observed in other persons. They attribute this phenomenon to diminished inhibition of the action of the iris muscle, owing to disease of the cerebral cortex, and think that this muscle may show deranged function long before the ordinary voluntary or striped muscles.

4. *Lesions of the Eye Ground in General Paralysis.*—Referring to a former paper prepared with Dr. Keraval, the authors state the results of reëxamination of twenty-three of their earlier series of fifty-one cases still remaining alive. Of these the ones in whom the paresis had progressed little, or not at all, remained in practically the same condition, while in those in whom the disease had progressed the eye ground changes were also more pronounced. Of a new series of forty-four paretics all but six showed more or less marked changes in the papilla. These changes varied from slight pallor to extreme whiteness or gray whiteness. In five cases they were able to make microscopical examinations of the eye. In these the retina showed marked increase of the connective tissue and neuroglia elements, the more marked the greater the atrophy.

ALLEN (Trenton.)

#### ALLGEMEINE ZEITSCHRIFT FUER PSYCHIATRIE

(Vol. 61, 1904, Pts. 1 and 2.)

1. A Casuistic Contribution to Imbecility. DR. GANHOR.
2. Maniacal Uneasiness (Verstimmung). C. G. JUNG.
3. A Case of Episodic Katatonia in Paranoia. E. VON GRABE.
4. Torture and Insanity. DR. MONKMÖLLER.
5. Moral Insanity. H. SCHULZE.
6. The Etiology of Simple Idiocy Compared with that of Infantile Cerebral Palsy. W. KOENIG.
7. Dining Rooms in Public Asylums. DR. LUDWIG.

1. *A Casuistic Contribution to Imbecility.*—History of a case of imbecility showing such defect in the moral sphere as might suggest the diagnosis of moral insanity and of some interest from a medico-legal standpoint.

2. *On Maniacal Uneasiness.* By this the author understands a condition of unadaptability to surroundings, emotivity and restlessness, often with defect in ethical feeling and with periods of submaniacal excitement, increased ideation and motor unrest. These cases usually develop in persons of neurotic heredity, and are often complicated by alcoholism, and account for cravings of stimulants on the part of the patient. He gives histories of four cases of this character, and comes to the following conclusions:—

(1) Maniacal uneasiness is a diseased state belonging to psychopathic inferiority, which is characterized by a stabile submanic symptom-complex.

(2) Exacerbations of uncertain periodicity occur.

(3) Alcoholism, criminality, moral insanity and social disability or impossibility are symptoms of this submanic condition.

3. *A Case of Episodic Katatonia in Paranoia.*—The author relates the case of a female thirty-eight years old, in whom, since the age of thirty-four years, symptoms strongly characteristic of paranoia of the persecutory form had been recognized, and who after having been in the hospital for three years developed the katatonic symptom-complex, which after having persisted for four or five months gradually gave place to the former delusional condition. Discussing the features of this case he concludes that the delusions were too well systematized, and the history too characteristic for it to be considered as one of the paranoid form of dementia præcox, and that the katatonic symptoms must be looked upon as being only an

episode in a case of true paranoia.

4. *Torture and Insanity*.—In a long article the author traces the working of the legally constituted examination under torture of persons accused of crime during the late middle age and renaissance periods, devoting special attention to the criminal procedure "Karolina" of Charles V. He shows that while the mentally unsound were nominally protected from torture, in practice the symptoms of mental disease were apt to be unrecognized or disregarded, and little or no account taken of the effect of suffering in producing sudden mental unbalance, the matter depending in the main upon the humanity and natural sense of the judge. In persons accused of witchcraft especially, popular fury and superstition caused even the usual safeguards to be set aside, and the most ordinary mental and nervous symptoms, such as hallucinations and illusions, convulsions, areas of anesthesia, etc., were seized upon as proof positive of demoniacal possession or influence.

5. *On Moral Insanity*.—A consideration of this subject from a philosophical and metaphysico-psychological point of view, which contributes little to the practical side of the matter, and does not readily lend itself to abstraction.

6. *Etiology of Simple Idiocy Compared with that of Infantile Cerebral Palsy*.—In a former paper the author has shown that there exists an unbroken chain of cases between infantile cerebral palsy with normal mental condition on the one hand and simple idiocy on the other. That the etiological factors in these two groups of cases are largely identical, the present article is intended to demonstrate. With regard to cerebral palsy the views expressed in the former article were as follows:

1. "We know only three certain etiological factors in the production of infantile cerebral palsy." (a) difficult or asphyctic birth; (b) trauma to the head; (c) the infectious diseases.

2. All other factors are to be considered as predisposing or contributing causes.

Any of the factors given under 1 may act also as predisposing rather than exciting causes. Outlines of anamneses in 260 carefully investigated cases of idiocy are given. These, upon analysis, furnish the following figures, compared with those for cerebral palsy in tabular form:—

ETIOLOGICAL FACTORS.	CEREBRAL PALSY.	IDIOCY.
	PER CENT.	PER CENT.
1. Insanity or nervous diseases in the ancestry .....	(about) 28.5	32
2. Phthisis in the ancestry.....	(about) 14.4	(about) 13.8
3. Father strongly alcoholic.....	23	" 15
4. Psychic trauma to mother in pregnancy .....	23	" 12.5
5. Somatic trauma to mother in pregnancy .....	(about) 2.9	" 3
6. Parents blood relations.....	1.4	" 1.1
7. First labor .....	27.1	" 17.6
8. Premature labor .....	10	3.8
9. Illegitimacy .....	10	6.5
10. Child delicate from birth.....	15.7	10
11. Child born late in life, or last of a large family.....	10	16.9
12. Insanity or nervous disease in other children of the family....	7.1	30.7
13. Tuberculosis or scrofula in brothers or sisters.....	5.7	2.3

ETIOLOGICAL FACTORS.	CEREBRAL PALSY.	IDIOCY.
	PER CENT.	PER CENT.
14. Death of other children of the family in early life or abortions more or less certain.....	35.7 (about)	16.8
15. Difficult labor or asphyxia.....	11.4 (14?)	10
16. Trauma .....	5.7	2.6 (2.5?)
17. Infectious diseases.....	7.1	3.4 (2.3?)
18. Syphilis .....	4 sure 3 probable	6.5 sure 4.2 very prob.
	7	10.7

7. *Dining Rooms in Public Asylums.*—A statement of the advantages, especially in the line of suggestion whereby the patients' appetites are improved, together with increased comfort and cleanliness, of dining rooms separated from the wards in public asylums, with a plea for the general adoption of the same.

ALLEN (Trenton.)

(Vol. 61, 1904, No. 3.)

1. An Unusual Course in Katatonia. W. FUCHS.
2. The Pavilion for the Criminal Insane at Düren. DR. FLUGGE.
3. The Value of the So-called "Curve Psychiatry." P. NAECKE.
4. A Case of Traumatic Psychosis. J. WENDE.
5. Pregnancy and Theft. M. FISCHER.
6. The Study of Heredity in Neuropathology. W. STROHMAYER.
7. State Care of the Feeble-minded in Saxony.

1. *An Unusual Course in Katatonia.*—History of a case which after an acute attack with katatonic symptoms, during ten years presented a typical picture of paranoia with systematized delusions of grandeur and of persecution, and with little or no mental weakness. A new exacerbation with hallucinations, illusions and typical katatonic symptoms then occurred. This lasted for six months, after which the patient became quieter, but his mental condition did not clear up, and he ran down physically and died. The autopsy is reported to have shown nothing characteristic.

2. *Pavilion for the Criminal Insane.*—Description of the author's experiences on caring for the criminal insane at the Düren Asylum, in a building specially erected for this class. Of the cases under his care, forty-seven were "simple mental disturbances," one of general paresis, two of epilepsy, fourteen of imbecility, two were found to be not insane, and in one the question as to simulation was not decided. The forty-seven simple cases were divided between dementia præcox, periodical insanity and paranoia. The building was soon found to be unsuitable, and had to be altered and strengthened, on which account the patients had to be temporarily returned to the parent institution. Many of them, the author observed, to do much better when distributed among the non-criminal classes, and, on the whole, he does not seem to have found the segregation of the criminals very successful, although after a rearrangement of the service, of which he gives the details, there was an improvement in this regard.

3. *Value of "Curve Psychiatry."*—In 1901, at a meeting of the German Society of Alienists, Sommer read a paper on the results of the three dimensional analysis of motor disturbances in nervous and mental diseases. In the discussion Fürstner spoke disparagingly of the so-called "curve psychiatry," which found no defenders among those present. What is meant by "curve psychiatry"? The author understands by it everything in psychiatry which lends itself to expression in numbers and curves, so



reaching the highest degree of exactitude. It is not a new kind of psychiatry, but only a rational and intensive method of applying statistics gained by methods, both old and new, whose value should be neither over nor underestimated. In order to secure the necessary groundwork at the start an agreement as to a general conception of insanity is essential, and an attempt to secure some sort of normal standards should be made. While the author considers that the work of Wernicke exhibits great genius in the psychological explanation of mental symptoms, he finds his classification unsatisfactory, and considers that of Kraepelin the more rational and practical, at least for the present. Taking up the subjects to be investigated, one by one, he first considers heredity and atavism, and urges that greater care be observed, to the end that a *post hoc propter hoc* sort of reasoning be avoided. Similar care is necessary in the consideration of the other etiological factors. Coming to morbid psychical manifestations, graphical presentation of the disturbances of perception and conception, of the emotional sphere, and of will and actions are necessary, and here clear-cut definitions are much needed. To this end psychological experimental methods need to be simplified and improved. Could this be done, the author thinks that the majority of the insane will be amenable to such methods of research. The study of the psychology of the individual is here of the greatest importance in order to determine the physiological width of the normal. The affective life presents the fundamental side of the psyche, since actions, both normal and pathological, depend in the greatest degree upon it. Its study, however, is of the greatest difficulty, and presents the most important future task of experimental psychology, normal and pathological. Already we can give rudimentary expression, by numbers and curves, to some elemental manifestations, such as association, and we have a right to expect an enlargement of knowledge in this direction in the future. The study of judgment and conclusion formation, presents more difficulties, and these difficulties are yet greater in the case of imagination and ethical feeling, for which so far nearly all orientation points are lacking. To say the least, however, the experimental method has furnished us so far much information about the psychical sphere, and we can reasonably expect by its extension to learn more. Hence we see that "curve psychiatry" appears, in fact, to be destined to play an important rôle, and to furnish the framework for the whole edifice which we seek to construct. The psychological experimental method is not, however, to be utilized alone, but is to be combined with other methods, anatomical, chemical and bacteriological, all of which have in common an exactitude which can be expressed in figures and curves, hence in the broad sense are included in the term "curve psychiatry."

4. *Traumatic Psychosis*.—History of the case of a man thirty-three years of age, who, in consequence of a fall on the head from a height of about seven feet, developed progressive dementia with hysteriform manifestations, and finally the Ganser symptom complex. Careful inquiry showed that until the injury the man had been mentally entirely normal, had no hereditary predisposition to nervous or mental disease, and was neither syphilitic nor alcoholic. Hence the author thinks the trauma the sole etiological factor in the case.

5. *Pregnancy and Theft*.—An interesting description of the case of a woman of twenty-nine years of age and of strong nervous heredity, but honest, sensible, and well behaved, except that during her pregnancies she was always restless, nervous and subject to uncontrollable outbursts of rage. During her fifth pregnancy she suddenly left home one day, and going to a neighboring town, with some poultry for sale, stole from a hotel twenty-two spoons, from a shop certain articles of clothing, from another shop three dressed chickens, and from a military casino twenty-two napkins and two table cloths. Although she gathered in these articles while

unobserved, in each case during a visit on legitimate business, and tucked them away in her basket, she made no attempt to conceal this basket, said that she had at the time no sense of remorse, and when arrested and charged with the thefts freely confessed. She then realized her position and became much distressed over the disgrace and her separation from her husband and family. Sent to the Illeau Asylum for observation as to her sanity, she was orderly, well behaved, and showed no mental abnormality, though naturally depressed on account of her position, which she now keenly realized. Considering all the points in the case, the author thought it an instance of the "longings" and uncontrollable impulses sometimes observed in pregnancy, and pronounced her in the broad sense irresponsible. He ends his paper with a discussion of the medico-legal bearings of the case.

6. *Heredity in Neuropathology*.—A consideration of the difficulties of the study of heredity, and a warning against falling into the *post hoc propter hoc* argument. The author concludes that what is needed is: 1. Psychiatric study of the ancestral tree, which takes into consideration the mental condition of all the direct ascendants through a number of generations. 2. Suited to this method of research seems only a small, little fluctuating community. 3. As sources of information the admission books of the asylum, the church register, the directory, and last, but not least, the case book of the family physician, are to be utilized.

7. *Care of the Feeble-minded in Saxony*.—An outline of the conditions of admission, general management and cost of keeping feeble-minded children at the Grosshennersdorf Asylum.

ALLEN (Trenton.)

(Vol. 61, 1904, No. 4)

1. The Stutterer Before the Law. A. HEGAR.
2. Tuberculosis and Asylums. F. GEIST.
3. Some Rare Conditions in General Paresis. K. ABRAHAM
4. Acute Mental Disturbances after Brain Concussion. M. REICHARD.
5. Certificates as to the Mental Condition of Suicides. W. WEYGANDT.
6. State Care of the Feeble-minded in Saxony. DR. MELTZER.

1. *The Stutterer Before the Law*.—An account of a criminal process in which the defendant was a stuttering soldier of subnormal mental development, with remarks upon the mental condition of stutterers and the precautions which should be taken to insure that justice be done them when they have to appear before the law.

2. *Tuberculosis and Asylums*.—The author presents a statistical study based upon the autopsy records of the Zschadrass Asylum during nine years from July, 1894 to July, 1903. The anatomical being preferred to the clinical method on account of its superior reliability. Of 1,471 persons admitted during the period under consideration, twenty-seven (or 1.08 per cent.) died of tuberculosis. Considering the yearly average, however, the percentage drops to 0.65. In a total of 269 deaths—number of autopsies not stated—tubercular lesions, active or healed, were found in ninety cases. The author gives a number of tables illustrating the location of lesions, time in asylum, form of mental disease, whether male or female, etc. Lesions of the lungs, of course, vastly preponderated, while it seems somewhat remarkable that no case of primary tuberculosis of the gastrointestinal tract was found. The author is fully convinced of the necessity for segregating the tuberculous insane, and of selecting to care for them attendants in whom any special predisposition to the disease is excluded, but since in a small institution the number of tuberculous patients present at any one time is limited, he suggests that all those of a district be collected in a special pavilion at one of the larger asylums.

3. *Rare Conditions in General Paresis*.—The author describes four



cases of general paresis from the Dalldorf asylum, which presented respectively the clinical pictures of apraxia, transcortical sensory aphasia, subcortical sensory aphasia and sensori-motor asymbolism. As he, rightly remarks, the difficulty of properly examining such patients is considerable, and has acted as a deterrent. His article, however, is valuable in showing what can be learned by careful psychological examination even when the patient superficially observed appears quite demented, and it seems likely that if such examinations were constantly made important information could be gained. In all except the last case the symptoms occurred after parietic seizures, and tended to improve as the effects of such seizures wore off. The author's detailed record of the examination of his cases presents much of interest, but lack of space does not permit its reproduction here.

4. *Acute Mental Disturbances After Brain Concussion.*—In the estimation of mental disturbances coming on after head injuries, it is necessary in the first place to eliminate other etiological factors, such as alcohol, syphilis and preëxisting mental disease; also it is well to decide between what limits the inquiry is to be confined. (For instance, in the broad sense, idiocy resulting from birth injury might be considered as a traumatic mental disturbance). The author limits his consideration to cases in which the clinical diagnosis of concussion of the brain seemed justified, excluding fractures of the skull and gross cerebral lesions. Of the symptoms which have been observed to follow brain concussion the following are the most constant: 1. Transitory or permanent intelligence defects, especially of memory. 2. Apart from fatally ending coma, acute psychosis, or delirium, aphasic or asymbolic conditions, ending either in recovery or in permanent dementia. 3. Alteration of character, as irritability, quick temper, mental weakness and intolerance for alcohol, which may progress to dementia. 4. Dementia. In order if possible to assist in constructing a clinical picture, the author gives an analysis of seven cases, four from literature and three personally observed, all but one of which ended in recovery. All occurred immediately following an injury in persons previously of entirely sound mind. The psychoses developed after a delirious or somnolent stage, lasted up to five weeks, and dependent upon the seat of the brain contusion, presented different symptoms. According as the cortical centers or the association fibres were affected there were disturbances of apperception, of primary and secondary identification (as cortical sensory aphasia, disorientation for place, mind-blindness and asymbolism), in some instances giving a picture similar to the Korsakow symptom-complex. Where a number of combined focal lesions could be suspected a more complicated clinical picture, with temporary loss of the greater part of the memory pictures, conceptions and abilities was presented. Of defects of memory, disturbance of ability to grasp and retain impressions ("merkfähigkeit") and retrograde amnesia—the latter often permanent—were most frequently noticed. Hallucinations and strong affects were only observed in one case, though they have been described in the cases of other authors. A striking symptom is the lack of judgment and of appreciation of his condition upon the part of the patient. In these acute conditions the author thinks we have a right to conclude that there are focal lesions more or less diffused, which, however, in many cases, are capable of repair though sometimes with defect. Hence while the prognosis is not necessarily bad, caution should be used in its enunciation.

5. *Mental Condition of Suicides.*—Discussion of the medico-legal points involved in a case where a statement as to the mental condition of a suicide was wanted.

6. *Care of the Feeble-minded in Saxony.*—Continuation from the preceding number of a description of the working of the Grosshennersdorf institution. A statement of the pedagogical methods employed.

ALLEN (Trenton.)



## AMERICAN JOURNAL OF INSANITY

(Vol. 60, 1904, No. 4, April.)

1. The Development of Insanity with Regard to Civilization. ROBERT JONES.
2. The Blood in Epilepsy. F. SAVARY PEARCE and L. N. BOSTON.
3. Was He a Paranoiac? C. A. DREW.
4. Treatment of the Morphine Habit by Hyoscine. J. M. BUCHANAN.
5. Status Epilepticus. L. P. CLARK and T. P. PROUT.
6. Some Metabolism Studies. OTTO FOLIN.
7. The Chemical Findings in the Cerebro-spinal Fluid and Central Nervous System in Various Mental Diseases. ISADOR H. CORIAT.
8. Report of a Second Case of Dementia Præcox with Autopsy. W. R. DUNTON.
9. A Case of Chorea Insaniens with Report of Autopsy. ISABEL A. BRADLEY.
10. Intracranial Psammoma without Paralysis. W. D. BERRY.

1. *Development of Insanity with Regard to Civilization.*—A consideration of the bearing upon the production of insanity of the modern conditions of life. The subjects specially considered are the degenerative effect of the tendency of populations to leave the soil and to crowd together in cities, and the increase of overwork and anxiety on the one hand, and of self-indulgence on the other, with their resultant influence in the production of the various fads, social and political, by which the forms of insanity are so apt to be colored. The author finds noteworthy the increase of general paresis and dementia præcox. His views are drawn from English conditions and seem decidedly pessimistic.

2. *The Blood in Epilepsy.*—The hemoglobin and corpuscles were studied in seven cases of idiopathic epilepsy with the result that the hemoglobin was found deficient, and in all but one there was moderate leucocytosis. In several rabbits careful blood counts were made during a period of laboratory sojourn, after which they received intraperitoneal injections, both of ordinary and of defibrinated blood from two more epileptics, Cases VIII. and IX. In the rabbits injected with blood from Case VIII. there occurred toxemic symptoms with increase in red corpuscles, and in hemoglobin and great increase of leucocytes. There was no difference in the effect of defibrinated and of non-defibrinated blood. In the rabbits injected from Case IX., which seems to have been altogether a more severe one than Case VIII., and died in a convulsion, there was even more marked toxemia, with rise in hemoglobin and red corpuscles, and enormous increase in leucocytes. This increase was specially marked in the eosinophiles, and occurred within twenty-four hours after the injection. The authors note specially the fact that this eosinophilia was equal to that found in parasitic diseases, as trichinosis and filariasis, and suggest the necessity for more careful observations as to the possible relation between epilepsy and parasitic infections.

3. *Was He a Paranoiac?*—The history of the case of an insane criminal, presenting some interesting medico-legal points. Although originally diagnosed as paranoia querulans, the author, after careful investigation, thinks the condition one of original defect, and that the abnormality is best covered by the phrase, "constitutional inferiority with moral perversion."

4. *Hyoscine Treatment of the Morphine Habit.*—After a trial of the methods of rapid and slow withdrawal the author recommends the following as a decided improvement: The patient is, if possible, kept under observation for a few days, and the morphine and cocaine reduced to the lowest comfortable dose. The night before beginning the hyoscine treatment, he is given six-eighths grains of calomel with some vegetable cathartic, followed by a saline the next morning. He gets his usual morn-

ing dose of morphine, but that afternoon the administration of hyoscine hydrobromate hypodermically is begun, and is continued in doses of gr. 1-200 to gr. 1-100 every two or three hours. He must be kept under the influence of the hyoscine continuously for thirty-six to forty hours, and is to be watched all the time by a special nurse. There is usually mild delirium during this period, but the author has rarely seen alarming symptoms. If the heart's action becomes irregular or weak strychnine is to be exhibited with some morphine or codeine if needed for diarrhea, etc. An occasional dose of trional, chloral, or sodium bromide, may be needed for sleeplessness. As a rule, however, the hyoscine produces sedation, and the patient does not ask for morphine. By the end of forty-eight or seventy-two hours the craving for morphine is usually gone, and under tonic and restorative treatment the cure is completed.

5. *Status Epilepticus*.—Will be abstracted when completed.

6. *Some Metabolism Studies*.—Will be abstracted when completed.

7. *Chemical Findings in Various Mental Diseases*.—After a short reference to the literature of the subject the author reports the results of his analyses of cerebro-spinal fluid in twenty-nine cases. The fluid was obtained by lumbar puncture, after death in most of the cases. The autopsy findings are also given. Of the twenty-nine cases fifteen were of general paresis. The points specially noted were the amount of fluid obtained, specific gravity, reaction, freezing point, and the presence of proteids, sodium chloride, lactic acid, reducing substances, urea and cholin. Upon the presence and quantity of cholin, the author lays particular stress, as he considers it characteristic of nerve degeneration. It was absent in only four of the twenty-nine cases. His analyses are given both in detail and in tabular form, and while a valuable contribution to the subject space does not permit their reproduction here.

8. *Case of Dementia Præcox*.—The author gives the clinical history and autopsy findings in a second case of this disease, a former one having been reported in 1903. The patient was a woman in whom the mental symptoms began at the age of thirty-seven years, and who died from marasmus and pneumonia at the age of forty-three. The clinical symptoms were sufficiently characteristic to justify the diagnosis of dementia præcox. The autopsy was very complete, and its findings are given in detail. Changes were found in various organs, but were not characteristic of the disease. In the nervous system the meninges showed chronic cell proliferation. Cell preparations were made from a number of regions of the cerebral, from the cerebellar cortex and from the cord. These showed increased pigment deposit, chromatolysis, generally central, atrophy and displacement of nuclei, with slight increase of glia nuclei about the cells. The results of the Weigert-Pal stain seemed to show that the tangential fibers were decreased in number. The author did not secure sufficiently satisfactory neuroglia preparations to decide as to whether there was increase or decrease of neuroglia fibers. He noticed some peculiar staining phenomena, which he was unable to explain, and cannot positively say were not due to some fault of technique. From his findings, and those of other investigators, the author thinks that in dementia præcox we have a degenerative psychosis probably of autotoxic origin.

9. *Case of Chorea Insanicens*.—The case of a young woman, nineteen years old, of nervous heredity, physically run down, recently married, and pregnant, who developed delusions of persecution, hysterical phenomena, choreic movements, incoherence, delirium and coma, and died forty-three hours after admission. The autopsy showed edema of the brain, advanced degeneration of the cortical nerve cells, vegetations on the mitral valve, congested hemolymph glands, arterial hypoplasia, persistent thymus and hyperplasia of the mesenteric lymph glands. The authoress thinks this case presents an instance of the lymphatic constitution described by Ohl-

macher, and that the clinical symptoms were probably due to an auto-intoxication resulting from disordered metabolism.

10. *Intracranial Psammoma without Paralysis.*—The author reports a case of tumor of this character, found in a woman seventy-four years old, who showed the clinical picture of senile dementia, and in whom no paralysis or focal symptoms were observed, though the tumor, about the size of an apple, impinged upon the right frontal and paracentral regions, crowded down the corpus callosum and its convolution, and pressed upon the internal capsule. The tumor structure is illustrated by some excellent photomicrographs.  
ALLEN (Trenton.)

#### NEUROLOGISCHES CENTRALBLATT

(Vol. 22, 1903, No. 23, December 1.)

1. Concerning the Reflex Iridoplegia and the Marginal Reflex of the Pupil. L. BACH.
2. Concerning the Different Biologic Value of the Posterior Roots and the Sensory Peripheral Nerves. G. KÖSTER.
3. A Contribution to the Pathology of Amnesic Aphasia. F. JUENSEL.
4. A Study of the Skin Reflexes of the Lower Extremity, in Particular the Babinski Reflex. S. GOLDFLAM.

1. *Reflex Iridoplegia.*—In this extremely important paper Bach calls attention to what is meant by reflex iridoplegia. It is according to most authors a reaction of the pupil to accommodation and not to light. The centers for the pupillary reflex have been placed either in the anterior corpora quadrigemina or in or near the oculomotor nucleus. The author experimented with lower animals, and comes to the conclusion that the center is either in the uppermost part of the spinal cord, or in the spinal portion of the floor of the fourth ventricle, or in the tracts leading to this part. Unilateral stimulation always produced unilateral myosis and a rigid pupil. The author explains the myosis by the stronger action of the sphincters overpowering the pupillary dilators when the center is at rest. Bach also studied one case where Haab's marginal reflex was present. This reflex consists in a narrowing of the pupil when it is directed on a light.

2. *Biological Value of the Posterior Roots.*—The author cut the peripheral nerves near and far away from their foramen, and studied the changes in the cells of the posterior ganglia. His results in the main agree with that of other authors; the cell changes are demonstrated. More interesting, however, are his experiments in cutting the posterior roots. The animals were killed from five to three hundred and thirty days after the operation. No changes were found in the nerve cells of the ganglia for the first eighty days, after which there could be detected a slight chromatolysis and displacement of the nucleus. In three months atrophic changes were detected, and from this time on there was a gradual atrophy of the cells. No vacuoles could be detected. There was also an intense pigmentation of the affected cells. Retrograde degeneration by the Marchi method of the posterior roots was found.

3. *Amnesic Aphasia.*—Juensel discusses the various phases of amnesic aphasia. The clinical and pathological report of his case will appear in a later paper.

4. *The Skin Reflexes.*—Continued article.

(Vol. 22, 1903, No. 24, December 16.)

1. A Study of the Skin Reflexes of the Lower Extremity, in Particular the Babinski Reflex. S. GOLDFLAM.

1. *Babinski Reflex.*—Goldflam in an extensive study of the skin reflexes of the lower extremity, especially of the Babinski reflex, agrees in



his results with that of other investigators. A pseudo ankle clonus was obtained in a hysterical patient, but not a Babinski sign. In cases of extreme spasticity and contracture this sign is sometimes not obtained. The author has seen the Babinski phenomenon directly after an apoplectic insult. In paralysis agitans it is sometimes present. In cases of transverse lesion of the cervical and dorsal cords the Babinski sign is present when the tendon reflexes are absent; but this sign was not obtained when the lumbar and sacral cords were destroyed. Goldflam agrees with Munk that there are two kinds of skin reflexes, those dependent on a cortical and those on spinal cord centers. He comes to the following conclusion: The first is the cortical reflex, which consists in the normal flexion of the toes, depends upon the integrity of the reflex arc, viz.: peripheral nerve, posterior root, posterior columns, nuclei of the posterior columns, sensory crossing, median fillet, parietal lobe, constituting the cortical leg center; from here the impulse is transmitted centrifugally through the pyramidal tracts to the ganglion cells of the anterior horns of the second sacral segment, to the anterior root, and finally to the muscle. If there is an interruption in this arc the impulse is not transmitted to the cortex, but by means of the collaterals to the ganglion cells of the spinal center, namely, to the extensor hallucis longus in the fifth lumbar segment. This constitutes the spinal plantar reflex.

(Vol. 23, 1904, No. 1, January 2.)

1. A Contribution to the Knowledge of Hemianopic Pupillary Rigidity. R. FRIEDLAENDER and KEMPNER.
2. The Genesis of Certain Symptoms in Katatonic Conditions. W. ALTER.
3. Concerning the Corneo Mandibular Reflex. F. V. SÖLDER.
4. A Reflex of the Face. A. FUCHS.
5. A New Spino Muscular Phenomenon in Normal Persons. D. J. MCCARTHY.

1. *Hemianopic Pupillary Rigidity*.—The authors have invented a new instrument by means of which light can be successfully thrown on any small part of the retina. They record a case of basal syphilitic meningitis, where there were symptoms of left-sided hemiplegia, left-sided atrophy and weakness of the tongue, difficulty in swallowing, bilateral optic atrophy, left-sided hemianopsia and pupillary rigidity. It is important as in this case to differentiate between a cortical and a basal lesion.

3. *The Corneo Mandibular Reflex*.—Reply to J. Kaplan. Von Sölder replies to Kaplan's criticism of the corneo mandibular reflex, and defends his position.

4. *A Facial Reflex*.—The author describes a new reflex which consists in a movement of the zygomatic and quadratus labii superioris, obtained by pressing the eye ball of the same side. It is obtained normally in half of the cases examined, and was increased in two cases of tetany.

5. *New Reflex*.—McCarthy describes a new muscular phenomena, which is obtained by tapping the second and third lumbar vertebræ, the person lying on the abdomen. A contraction of the semi-membranosus and semi-tendinosus is obtained. The author considers it analogous to the Babinski reflex, that is, a reversed contraction from the flexor to the extensor muscles.

(Vol. 23, 1904, No. 2, January.)

1. A Case of Psychosis as a Result of Multiple Brain Tumors. F. HOPPE.
2. Skin Emphysema Following an Epileptic Attack. DR. RANSOHOFF.
3. Remarks Concerning the Work of Bielschowsky; the Histology of Multiple Sclerosis. A. STRAÜHUBER.
4. The Unmyelinated Fibers in Multiple Sclerosis. -A Reply to Straühuber. W. BIELSCHOWSKY.

1. *Psychosis in Brain Tumors*.—The author reports a case of multiple carcinomata of the brain, where the patient presented a psychosis similar to the condition seen in katatonic stupor.

2. *Skin Emphysema in Epileptic Attack*.—The author reports a case of epilepsy where after an attack one side of the face became gradually swollen. There was also some pain in swallowing. He attributes it to a rupture of the tracheal membranes.

3 and 4. *Multiple Sclerosis*.—The author criticizes Bielschowsky's conclusions in regard to the method the latter devised, the silver impregnation method, by which he showed the axis cylinder processes in the sclerosed areas of multiple sclerosis. Straühuber calls attention to his own work by the anilin blue method, and considers that these unmyelinated fibers are efforts at regeneration. Bielschowsky replies and defends his findings, criticising the methods employed in staining, and gives further evidence supporting his views. WEISENBURG.

#### CENTRALBLATT FUER NERVENHEILKUNDE UND PSYCHIATRIE

(July, 1904.)

1. Comparative Psychiatry. E. KRAEPELIN.

2. The Febrile Alcoholic Delirium of Magnan. DR. ALZHEIMER.

3. On the Psychiatric Conception of "Depression" (*Verstimmung*). GAUPP.

1. *Comparative Psychiatry*.—Kraepelin has availed himself of an opportunity to study insanity at the Buitenzorg Asylum in Java. Patients of European birth there present the same clinical pictures as at home, the exceptional rarity of senile dementia being, as in other colonies, due to the character of the population. The natives use no intoxicating liquor, and so alcoholic insanities do not occur. Opium affections are not seen in Java, nor are they, according to Dr. Ellis, in Singapore, where the population is Chinese and opium eating is widespread. The common Sirih-chewing habit produces no general effects, and malaria-psychoses are not observed. Progressive paralysis and brain syphilis were not found in a single one of 370 insane natives, though there were eight such cases among fifty European insane—a difference which accords with experience in other lands. This is interesting in connection with the facts about alcohol. Dementia præcox is exceedingly frequent in the natives; manic-depressive insanity rare. States which can with more or less accuracy be called psychic epilepsy are frequent. The symptoms of insanity in the natives are not clean-cut; katatonic signs, hallucinations of hearing and systematized delusions are almost absent. Prodromal depression is slight, and terminal dementia consists in moderate confusion with dullness. Transitory frenzies are common. The often-described *Amok* and *Látah*, according to Kraepelin, are peculiar forms of the known insanities; *Látah* being an imitative-automatism with coprolalia, arising from sudden emotional excitement with complete preservation of consciousness, reminding us of hysteria.

*Amok*, on the other hand, is not a single affection, but includes impulsive violent acts with impaired consciousness. Some are the homicidal and suicidal acts of early katatonia, most are those of psychic epilepsy, and are connected with other signs of the epileptic dreamy state. A few cases cannot be thus accounted for; the possibility of larvated malaria attacks must be considered.

Kraepelin's conclusion is that the natives of Java show none but recognized forms of insanity, modified as the people's mental development is at a lower stage.

2. *Febrile Alcoholic Delirium of Magnan*.—Alzheimer says delirium tremens in its ordinary form figures as one of the best known mental dis-

turbances; whether it is ever accompanied by fever, is, however, a mooted question. Rose says never, even in the worst cases, while Döllken asserts that some elevation of temperature is never lacking. Most writers, however, are inclined to ascribe temperature elevation to the frequent affections of the respiratory and digestive tracts (Bonhöffer, Ziehen); but Alzheimer refers to analogous conditions of delirium in which fever must be of cerebral origin.

The "febrile alcoholic delirium" described by Magnan and Lasègue does exist, in Alzheimer's experience; three instances were met with among 160 delirium cases at the Frankfort Asylum. The patients were strong men, between thirty and forty, and were whisky drinkers; the symptoms were great restlessness, occupation-delirium, lively hallucinations of sight, unorientation in space, active, coarse tremor and profuse sweating. In each case, some hours after the onset of the delirium, a severe epileptiform convulsion occurred, after which the temperature was 39.4 degrees, 39.6 degrees, 40 degrees in the respective cases. All were fatal in a few hours (five, eight, fourteen from the onset); and in two, section was made; but no cause for the fever was discovered. Alzheimer concludes that it was cerebral, analogous to that of status epilepticus, paresis and brain-syphilis. He describes some rather common microscopic changes in the central nervous system.

3. *Gaupp on "Depression."*—A psychologic dissertation.

PICKETT (Philadelphia.)

#### REVUE DE PSYCHIATRIE ET DE PSYCHOLOGIE EXPERIMENTALE

(March, 1904.)

1. The Vicious Insane. COLIN.
2. Experimental Researches on Death in a Case of Hemiplegia. VASCHIDE and VURPAS.
3. Influence of the Emotions on Language. PIÉRON.
4. Graphic Tracings. J. M. LAHY.

1. *Vicious Insane.*—By the vicious insane the author does not mean those that are criminals, but rather that class, a few of which can be found in every large asylum, who have vicious tendencies and whose acts are constantly disturbing to the general hospital discipline. Persons, in other words, of such tendencies that they cannot be properly cared for in wards constructed and managed for the care of the insane. He advocates the construction of small cottages for thirty to forty patients, somewhat upon the prison style, where these individuals can work under observation and comparatively isolated, only two working together, containing small dormitories and single cells for the unruly or specially disturbed.

2. *Death in Hemiplegia.*—The psycho-physiology of death is surrounded by many obscurities and has never been rigorously studied by the experimental method. The authors present their studies of a case of hemiplegia. These studies are physiological solely, and their presentation is preceeded by an account of the autopsy findings. Briefly, these were cerebral softening, pneumonia and endocarditis. The principal facts of interest observed just preceeding death were trembling on the non-paralyzed side, but its absence on the paralyzed side and the complete cessation of this tremor before death seemed to indicate the death by stages of the central nervous system. The disappearance of the capillary pulse on the hemiplegic side before the other side, which was probably due to more ready fatigue and death, due to the fact that they had so long been cut off from the centers. The persistence of the heart beat of the cessation of respiration.

3. *Influence of the Emotions on Language.*—Calls attention to the difference in tone, rhythm and the choice of words caused by emotions.



Love produces a tendency to regular rhythm, even to chanting. Anger chooses brief, staccato rhythms.

4. *Graphic Tracings*.—The great advantage of the graphic method is that by it errors of the senses are avoided. In order, however, that observations may become of the greatest value by comparison with others they should be registered by a uniform method, and above all the different curves should receive a mathematical interpretation.

(April, 1904.)

1. Note Relative to Dementia Præcox. RÉGIS.

1. *Dementia Præcox*.—This article is an extract from the author's *Précis de Psychiatrie*, and contains his opinions as to the proper classification of dementia præcox. He believes that dementia præcox is not an entity but a mode termination of acute confusion, and might be properly called chronic mental confusion. His reasons for so believing are: first, that all the cases of dementia præcox he has followed have begun with acute confusion, often hallucinatory; second, that given an acute confusional onset the termination in dementia præcox cannot be foreseen any better than the fortunate or unfortunate termination of acute mania or melancholia, and, third, cases of acute post-infectious confusion that do not get well terminate in a dementia analogous to dementia præcox. Thus he tries to point out that among all of the secondary dementias, that which follows a state of confusion represents above all the dementia præcox of Kræpelin.

WHITE.

MISCELLANY

CRIMINAL TYPES. G. C. Speranza (American Law Register, March, 1904).

Gino C. Speranza in this paper endeavors to apply Sergi's theory of the survival of the weakest to the born criminal, and to explain thereby the persistence of the criminal type. He sets out with the fact of common observation that the physically weak often outlive the physically strong, for "while the latter struggle, the former submit." From his very conception the individual is at war with numberless forces that tend to destroy him." Complete adaptation to the environments means health. But there is also an imperfect adaptation which gives us a surviving weakling, such as the neurasthenic. "It is not only those that offer the greatest resistance to the change of environment who survive, but also some few of those who offer the least resistance." Passing from physical to moral and social phenomena, the same rule applies. The parasite and criminal degenerate are not the fittest, yet they survive. They survive not by reason of their strength, but because they submit to what are to them abnormal conditions. It is because of such imperfect adaptation that the criminal is apt to break the rules of the body social. Heredity alone cannot explain the vitality of the socially unfittest. The impulse of Nature would, if anything, tend toward health. And the procreation of degenerate children defeats itself. How, then, do we account for the persistence of the criminal type? Social conditions will not explain it, as improvement in such social conditions does not seem to decrease but only to modify. The author finds the cause in the adherence to unscientific penologic principles, and to mistaken altruism. He insists on the necessity of a more scientific classification between merely bad or mistaken men and criminal men. The test of the latter is the "lack of response to reformatory influences," and it matters little whether the offense is great or small, its repetition is the test of criminality. Criminals of this class are comparatively few; the largest number of those classed as criminals are not such. The true altruism is to help the latter; the wrong altruism is to help the former as part of the same large, deserving class. "To

foster the degenerate qualities" of the really criminal "is to perpetuate that which is bad in the race." "It is dangerous optimism that hopes for the reform of such men." Let the Codes institute a scientific classification of criminals, based on better tests than the "vague theory of the forces of good and evil in man." Then substitute criminal therapeutics to mere punishment. "Where a cure is possible, let the remedial agencies suggested by criminologic and sociologic science have full scope. But where juridic therapeutics fail let there be no mistaken altruism to perpetuate the unfittest. Perpetual segregation, where less trying ostracism is impossible, is the only way out of the problem of the criminal."

W. B. NOYES.

## Book Reviews

ON THE MORAL FEEBLE-MINDEDNESS OF WOMAN. By KATINKA VON ROSEN, with a Preface by Dr. P. J. MÖBIUS, and also some Selected Criticisms and Letters. Second edition, Halle. Press of Carl Marhold, 1904.

This brochure is meant to follow one by Möbius on the Physiological Feeble-mindedness of Women, which was reviewed in the JOURNAL of May, 1904, and in the preface to Katinka von Rosen's book, Möbius attempts to deduce her thesis, as a corollary, from his own. He had maintained in his book "that all brain activities of the normal woman are slighter (*geringer*) than those of the normal man, saving the love for children"; "hence," he now grants, "the moral capabilities in woman must be relatively weak;" but a moral deficiency independent of other mental defect, Möbius will not allow; and so he says the "right title for the Rosen essay would be: "On the Physiological Feeble-mindedness of Woman in its Moral Aspect."

The body of this book lends support to Möbius' thesis, and perhaps to its writer's as well, if Katinka von Rosen be really a woman. It is superficial and sensational; she herself apologizes for one feature of her book (its appendix of letters) as being perhaps "too American." Her text seems to be "*cherchez la femme*," and what is of value in her essay is so because, like the text, it is in common use and popular. Thus, "A man will never sink so low as a woman," and "Murder by slow poisoning continued for weeks or months, and with a pretense of love for the victim, requires the cruelty and cold-bloodedness of woman; it is impossible to the worst man." An instance of the rant indulged in by Katinka von Rosen is this: "A woman's soul, when she has one, is often asleep; her heart, however, is only a hollow muscle, which regulates the life activities but has nothing to do with love."

WILLIAM PICKETT.

LES PSYCHONEVROSES ET LEUR TRAITEMENT MORAL. By DR. DUBOIS. Masson & Company, Paris.

This interesting work has been projected with a view to emphasizing the importance of what the author terms *psychotherapy*, that is, the employment of mental, or rather moral treatment, in cases of nervous disorders of varying character. It is the author's contention that many victims of nervous affections undergo physical treatment with little or no improvement resulting from it, while moral influence alone has many times proved of the greatest value and benefit, even when the existence of a definite lesion had been positively demonstrated.

He would put into practice measures designed to encourage the patient to aid in his own restoration to his normal condition, and would have the physician become a teacher, giving instruction in self-control instead of bromides and glycerophosphates, and prescribing mental exercises instead of douches and massage. Dr. Dubois' faith in the efficacy of these methods has been established by many years of clinical experiment, and in these pages he cites many instances from his extended experience, proving the value of his theories when practically applied. It is his belief that the final cure must come from within, not without, and he therefore avoids the use of hypnotism and suggestion, aiming to restore the mental balance by stimulating the patient's ambition to meet his obligations to society in a normal way, and by strengthening his powers of self-control and restraint. It is evident that such a book is of interest, not alone to the neurologist and psychiatrist, but to every student of psychology and philosophy, and it contains many suggestions and offers many new aspects of thought upon which the general public might do well to ponder. It marks a distinct advance along lines of the highest import, and will prove a valuable addition to any library.

POPE.



THE  
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**Nervous and Mental Disease**

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**Original Articles**

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A CASE OF JUVENILE TABES IN A FAMILY OF NEURO-SYPHILITICS.

FATHER SYPHILITIC, MOTHER TABETIC, BROTHER PARETIC, SISTER HEMIPLEGIC.

BY J. GRINKER, M.D.,

OF CHICAGO.

INSTRUCTOR IN CLINICAL NEUROLOGY NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

Cases of juvenile tabes are still very rare. After a most thorough search and painstaking labor, Dr. Otto Marburg,<sup>1</sup> of Vienna, who reported a case of his own, has been able to collect only 34 cases. A critical analysis will show that even this number is entirely too large, as some doubtful cases have found a place in his table. In my opinion, 20 would be an approximately correct number of reported genuine cases.

In the following report I have endeavored to ascertain the facts and faithfully to record them, rather than to quote the already voluminous literature on the subject.

I. *Mother*.—R. C., fifty-seven years old, house-wife, first came under my observation in March, 1904.

*Family History*.—Her mother died of old age at seventy-five; maternal grandmother lived to one hundred and four; maternal grandfather reached old age. Her father died at eighty, but he came of a short-lived family. There were five brothers, of which number one is probably alive. The others died in infancy or by accidents. There were no sisters. She knows of no form of nervous disease or mental derangement in her entire ancestry.

*Health History.*—From infancy up to married life she enjoyed good health. At eighteen she became the wife of a healthy man. A son was born in this marriage who is now thirty-eight years old and perfectly healthy. The husband died of some acute disease after only fifteen months of married life. The patient remained a widow for nearly twelve years, during which time she followed the occupation of a canvasser. She was always very active and had no disease during her widowhood. In 1877 she married her first cousin. Her new husband was only twenty-five years old, but he was sick most of the time. He admitted having contracted syphilis at the age of twenty-one. She is positive of having noticed on his body peculiar coppery blotches and that his hair had fallen out. She remembers that he suffered repeatedly from sore throat and hemorrhoids (condylomata?). Headaches were constant and both he and his wife made his dissipated habits responsible for them. He was mentally normal, but drank to excess and died at the age of forty-seven from some chronic pulmonary affection, presumably tuberculosis.

*Obstetric Record.*—Her first son, W., (juvenile tabes) was born May 21, 1878. Her second son, T., (general paresis) was born October 1, 1880. Her daughter, L., (cerebral lues) was born April 19, 1882. She never had any abortion, nor did she ever miscarry. Shortly after her marriage she developed headaches and rheumatic pains and a little later a peculiar "rash" on the body, which was thought to be urticaria and which persisted throughout her first pregnancy. She never noticed a primary sore, nor did she receive antisyphilitic treatment. Shortly before L. was born she was again covered with a peculiar eruption. The menopause occurred at forty-six and was unaccompanied by unusual nervous disturbances.

*Present Trouble.*—About twelve years ago she developed certain sensory disturbances. She felt a numbness and tingling of the feet, and a sensation as though she was walking on "stuffed cushions." At about the same time, or shortly thereafter, she began to experience prickling and dull pains in the legs which would come at irregular intervals and sometimes felt like millions of needles. During the last ten years she has had the classical lightning-like pains of tabes which were very severe at first, later moderated a little, and now occur mostly at night. For the past five years similar shooting pains have occurred in the upper extremities. About twelve years ago she lost vision of the right eye. A little later the left eye began to fail and gradually became totally blind. About seven years ago peculiar attacks of abdominal pains made their appearance. She describes the sensation as that of "somebody grinding or twisting her insides out," while there is a burning

sensation in the stomach. Occasionally smothering feelings would accompany these attacks. Since last May she has suffered at irregular intervals from classical gastric crises: spells of vomiting, with intense, agonizing pain in the epigastrium, lasting from twelve to twenty-four hours.

*Status Præsens.*—In general appearance she is a small, poorly nourished old lady of about sixty-five or seventy years—her real age is only fifty-seven. No signs of lues can be discovered. There is no evidence of peripheral arteriosclerosis, but the pulse is feeble, intermittent and 80 to the minute. The heart does not appear enlarged; the apex beat can scarcely be felt. There are no distinct adventitious sounds, but the second aortic sound is slightly accentuated. No abnormal area of dulness over sternum, no tracheal tugging, no visible pulsations can be observed. The pulse is synchronous on opposite sides and of equal volume. The lungs are emphysematous, but the abdominal viscera appear to be normal. There are no bony or other deformities. There is no loss of muscular power. Special senses, with the exception of sight, are uninvolved. Tremor is absent.

*Coordination.*—A moderate degree of ataxia of station and gait is present. The patient requires a cane to steady herself in standing, and she cautiously takes small steps in walking. In the upper extremities the ataxia is more pronounced. She cannot approximate the tips of index fingers. In the attempt to touch the nose with the forefinger, the right side proves the more ataxic of the two, but even here the ataxia is not extreme in degree.

*Reflexes.*—Achilles, patellar, and wrist reflexes are absent. Superficial reflexes are all present. Egger's tuning-fork test (small C., 128 vibrations) demonstrates impaired osteosensibility.

*Sensation—Subjective.*—A peculiar cushion-like feeling under the feet and paresthesia in the fingers is complained of. *Objective.*—(a) Tactile sensibility is impaired in the upper extremities, and particularly in their ulnar distribution. (b) There is analgesia in the ulnar nerve distribution bilaterally, and also in the peroneal distribution; needle pricks are not perceived as painful impressions. (c) Slight trunk anesthesia is present on the anterior surface of the chest, beginning at the third rib and extending downward four fingers' breadth on both sides. (d) Pressure on the ulnar nerve trunk does not cause pain (Biernacki's sign). There is no persistence of painful impressions; no delayed conduction. The sense of position is greatly impaired on the left side, less so on the right side: she is unable to tell the position of digits and phalanges when they are passively flexed and extended. The stereognos-



tic sense is markedly impaired, tactile and pain sense bilaterally reduced in second and third branches of the trigeminus.

*The Eyes.*—I am indebted to Dr. Thomas A. Woodruff for his ocular findings in 1900, which were as follows: Atrophy of optic discs. Acuity of vision, right eye: hand movements; left eye 20-100. Field of vision showed marked contraction for white with doubtful color perception. In March, 1904, I found a complete optic atrophy. She could barely tell light from darkness with the left eye; the right was doubtful. There were anisocoria (right pupil smaller than left), and pupillary rigidity to both light and accommodation, but no ocular palsies.

*Sphincters.*—The bladder function is normal. Since last May she has often been compelled to make hurried calls to the toilet-room, or else she would lose some rectal contents. The patient calls these happenings diarrheal attacks; in my opinion they are signs of sphincter incontinence.

*Psychic Symptoms.*—Intelligence is good and memory seems to be good, but she states that formerly it was better.

The lightning pains, Westphal and Romberg signs, optic atrophy, gastric crises, the characteristic objective sensory disturbances, paresthesia, the absence of motor involvement, make the diagnosis of tabes a certainty. As in so many women, the syphilitic primary sore has been overlooked, but it is noteworthy that there were no abortions and that no antiluetic treatment was given. It must also be noticed that the ophthalmologist was the first to examine the patient and make a diagnosis of tabes, and that the ataxia has not materially advanced since optic atrophy made its appearance.

On the 27th day of March, 1904, I was hurriedly called to see the patient, whom I found in a wretched condition. She vomited continuously, suffered excruciating pains in the epigastric region, and had a violent diarrhea. These symptoms persisted for about a week with but slight remissions. During all this time she could not take any nourishment, and she emaciated rapidly. This attack came to a sudden stop on April 2, when the vomiting ceased and a complete paraplegia, paralysis of the sphincters, and bed-sores developed. Gradually she became stuporous, talked incoherently at times, and occasionally moaned as if in pain. On April 4, 1904, she was transferred to Wesley Hospital, where her condition remained practically unchanged until April 7, when she became completely comatose and died.

During the last few days of her illness the pulse ranged from 108 to 140, the temperature did not rise above the normal until shortly before her death, when it jumped up to 102.5 degrees F. A chemical and microscopical examination of the urine yielded negative results. The blood, which Dr. R. C.

Whitman kindly examined for me, gave: Erythrocytes, 4,448,000; white blood cells 18,944; hemoglobin, 95%. The increase in the whites was almost entirely limited to the polynuclear neutrophiles.

*Post-mortem Report.*—About seven hours after Mrs. C.'s death the post-mortem examination was held by Dr. W. S. Griswold in my presence.

We found the body extremely emaciated, so much so that the skin could be lifted up in large folds. Post-mortem rigidity was well marked in the ankles and wrists, not very distinct in neck, elbows and knees. Over each gluteal fold and extending about two inches to either side of anus a large bed-sore was observed. There was post-mortem lividity over the posterior surface of the entire thorax. No signs of violence, nor stigmata of syphilis or tuberculosis could be detected. The brain showed no meningeal hemorrhages nor thickening, neither was it edematous. The convolutions were not flattened and the sulci had normal depth. Upon cutting into the brain substance I found no hemorrhages or softening. The ventricles were slightly distended, but the ependyma appeared normal. The arteries at the base of the brain, and particularly the carotids, showed a moderate degree of atheroma. When the cord was severed from the medulla there escaped quite a large quantity of cerebrospinal fluid. The cord itself appeared somewhat flattened on its posterior surface; the meninges were not affected. Cutting into the cord one can easily make out a distinct sclerosis of its posterior columns.

Microscopically I found the typical degeneration of advanced tabes, involving almost all exogenous fibers and sparing the endogenous fibers of the posterior columns. The degeneration could be followed up to the gracilis and cuneate nuclei. Serial sections made through the medulla and mid-brain revealed a normal condition by the Weigert-Pal stain. Marchi preparations gave a negative finding, showing the degeneration to have been of long standing.

The other viscera were transmitted to Prof. F. R. Zeit for a macroscopic and microscopic examination, who kindly reports as follows:

(1) Simple hypertrophy of left ventricle, slight chronic fibrous endocarditis of mitral valve. The myocardium shows microscopically some cloudy swelling, fragmentation, nuclei and transverse striæ indistinct; no increase of interstitial tissue.

(2) Extensive atheroma of aorta, but no dilatation.

(3) Chronic diffuse nephritis, interstitial type. The capsule strips with difficulty, leaving a granular surface, on which are seen one or two large depressions. The microscope

reveals in the left kidney distended tubules, which are lined with atrophic epithelium; the interstitial tissue is increased. The capsules of Bowman and the walls of the blood vessels are slightly thickened. Passive hyperemia is present. The right kidney shows similar changes, and, in addition, many small scar-like retractions, the size of a millet seed. Numerous atrophic and obliterated glomeruli and uriniferous tubules are seen.

(4) The spleen was found atrophic; weight only 45 gms.

(5) The liver is smaller than normal, and shows extensive fatty infiltration and some albuminoid degeneration.

(6) Vesicular emphysema of lungs with extreme atrophy of alveolar septa and great distension of alveoli. (This probably accounts for the non-recognition of the heart-hypertrophy and for the existence of indistinct apex-beat.)

(7) Gangrenous vaginitis. (This probably occurred shortly before death, and appears to have originated from the bed-sores.)

(8) Submucous hemorrhage into corpus uteri and constriction of cervical os; atrophic ovaries.

(9) Passive hyperemia of the stomach.

(10) Intestines are slightly congested.

Wishing to discuss the case of *juvenile tabes* separately, I shall first take up the records of the other members of the family.

II. T. C., now deceased. Not having had an opportunity to see him myself, I depend for my information upon his mother and an intimate school friend. T. was the second child, born at full term in normal labor, was well in every way and showed no symptoms of nervous or mental disease until he reached the age of eighteen. He was a pleasing, well-mannered boy, was considered bright and energetic, never dissipated, and his sight was excellent until death. At the age of eighteen a gradual change in his character began: the modest young man became a braggart as regards wealth and attainments. His delusions, however, were not fixed. His former energy dwindled into indecision and lethargy. At about the same time some impediment in his speech was observed: his friend says it was slow, interrupted, and was very much like that of a drunken man. He never had epileptoid or apoplectoid attacks. When his former schoolmate—a very intelligent young man—visited him at the Cook County Hospital for the Insane, the then inmate immediately recognized him. However, in a not lengthy conversation which took place, the patient spoke of having in prospect an excellent position and of various other good opportunities awaiting him. At this same visit the patient forgot his friend's name once



or twice, although he had been an intimate friend for years. During a second visit a few weeks later he noticed that T. wandered considerably in his conversation, was indifferent to domestic happenings, and again had to ask for his friend's name, having called him by name but five minutes previously. Five months after the first visit, that is, shortly before his death, the same friend visited him again. This time he could not recognize him at all; he was confused, seemed in dream-land, and his speech was very imperfect, while his face was in a constant "tremble." After an eighteen months' stay at the asylum the patient died in stupor. At no time was he violent, but a gradual simple dementia seemed to have led to the end.

Even without a personal examination one is justified in making a probable diagnosis of general paresis.

The absence of any focal symptoms, such as hemiplegia, monoplegia, etc., ocular disturbances or other signs directly referring to cerebral lues would probably exclude that disease. The course was too rapid for, and differed from that of, dementia præcox, simple melancholia, or any of the other psychoses. The typical psychical symptoms of simple general paresis were certainly present in abundance. The change in disposition, the loss of memory, the speech difficulty, the flickering of the facial muscles, gradual mental deterioration with confusion and complete destruction of the intellect at the last, all these symptoms make almost a positive diagnosis of dementia paralytica.\*

A report from the Dunning Hospital confirms the diagnosis and states that the patient became rather filthy towards the last, and that he died February 5, 1901, after a fifteen months' stay at the hospital.

III. L. C., now nearly twenty-two years old, is the youngest child of Mrs. C.

*Health History.*—She was born at full term in normal labor about two and a half years after T. When a few weeks old she had "snuffles." At nine months she had a peculiar eruption which involved a portion of the trunk, but principally the junctions of skin and mucous membrane, such as the anal margin and oral ring. From her mother's description she appears to have had moist papules, although they were mistaken for hemorrhoids at that time. At eighteen months a chronic hydrocephalus was observed, which caused no inconvenience. Later she had an asthenic type of pneumonia, from which she recovered perfectly. There never were convulsions during infancy and childhood. Her temporary teeth were not particularly slow in coming, but they fell out like shells soon

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\* See note at end of paper.

after their appearance. At school she was a good and apt pupil, graduated from grammar school at fourteen, and up to her eighteenth year appeared quite bright; in fact, a little above the average of her associates. During childhood she was well except as noted. Menstruation began at thirteen, and has always been regular and painless.

*Present Illness.*—During the month of August, 1899, she suffered from severe headaches, which were rather irregular in their appearance and not particularly worse at night. In the wake of these headaches she developed a condition of drowsiness which persisted for nearly twenty-four hours. Her mother advised fresh air, and sent her out. After a time, as she failed to return, the mother became alarmed; looked for her, and found her sitting on the door-step. They entered the house together, and then the mother discovered that her daughter's face was "crooked." She was sent to bed for the night, and next morning it was noticed that the entire right side was paretic with the exception of the upper facial territory. However, improvement occurred so rapidly that on the second or third day she could attend to her duties with but little disability. The headaches, which previously had been so intense, became less so and changed to the type of "dizzy" headache. The next month, in September, she had another attack of right hemiparesis, which was rather evanescent, recovery taking place in one day. In December of the same year she had a third and more severe hemiplegic attack on the same side. It came on rather gradually, several hours elapsing before the paralysis was complete. There was no loss of consciousness, but for about twenty-four hours there was complete loss of speech. Then she began to utter some senseless phrases. This was evidently the usual mixed type of aphasia. She could neither fully understand words spoken to her, nor could she express herself in spoken language. Somewhat later this condition became a paraphasia: she would use words to express herself, but they had not the intended meaning. For an entire year her speech was a mere excuse for language. Even at the present time there is a marked defect in speech: she pauses occasionally and makes repeated attempts at the enunciation of certain words before she succeeds. Improvement of the hemiplegia occurred in the following order: face first, then the arm, and last, the leg.

About two and a half years ago she developed a right interstitial keratitis, followed by a similar affection on the left side. She was treated by Dr. T. A. Woodruff and made a good recovery. A little over a year ago she had her first epileptic fit. The attacks at first occurred bi-weekly; later, by appropriate treatment, they were considerably reduced in frequency. The

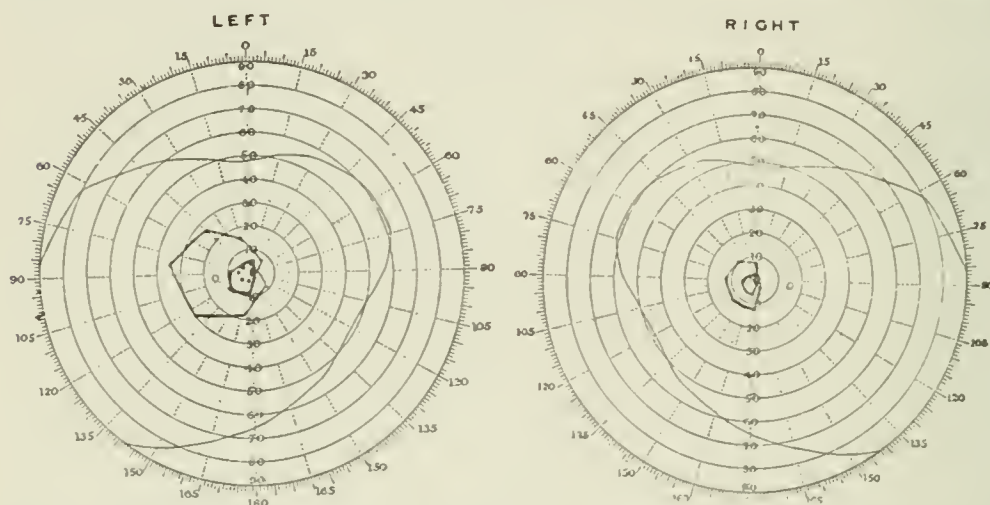
fits always begin in the paretic right half of the face, then spread to the right hand, arm, and, lastly, to the leg. All this time she is conscious and, so to say, watches her own fit. After the leg has been reached, however, the fit becomes generalized; she loses consciousness and has a typical *grand mal* seizure. Often the attack can be aborted by mechanical means, such as rubbing her cheek, slapping her hands, etc. A great many times these manœuvres are futile and she herself knows that she must have a regular convulsive attack. Immediately preceding the loss of consciousness there is a sensation as though she were going down a precipice—and she falls. The convulsion, which consists of a short period of tonic, followed by a somewhat longer period of clonic spasms, never lasts more than five minutes, and usually leaves her in a dazed condition, which is sometimes followed by sleep of about fifteen minutes' duration. She never bites the tongue, but occasionally froths at the mouth. There is no relaxation of sphincters during the fit. The mother states that the girl's intelligence has somewhat suffered since the last "stroke" of paralysis, and more so since the epilepsy supervened. She is forgetful and somewhat contrary; in fact, her family think she is mentally unbalanced.

*Status Præsens.*—A well-developed girl, fairly nourished, of average size and rather youthful appearance for her age. There are signs of a past hydrocephalus. Her forehead is rather prominent and makes the face look small by comparison. No radiating white lines are seen about the mouth. The root of the nose is very much flattened and resembles the classical saddle-nose more than a little. A chronic ozena is present and the hard palate presents a distinct aperture. The sternum and both tibiæ are tender on pressure. There are well-marked bony excrescences on the crest of either tibia, giving each a slight convex (saber-shape) curve. Enlarged superficial inguinal glands are distinct. The teeth are poorly formed. The upper central incisors are black, appear crumbled and are notched; the lateral upper incisors are turned out at an angle instead of being parallel, are rather small and far apart. The lower incisors are very thin and present several longitudinal ridges. The tongue does not deviate on protrusion. For the following statement of eye findings I am indebted to Dr. Thos. A. Woodruff. In the year 1900: pupils active. Vision 20-30 and Jaeger I read with difficulty in either eye, disseminated choroiditis and commencing optic atrophy, both sides. Fields of vision for white, green and red are markedly and irregularly contracted, but no central scotomata are present, and no inversion of the color fields. His findings at present (March, 1904), are: with the exception of a number of floating vitreous opacities in both eyes and some haziness of the corneæ, the media are



clear. In the fundus of either eye are seen patches of choroid atrophy, pigmented and optic nerve atrophy. With a high plus lens the Hirschberg vessels in the cornea are easily seen. The pupils are equal, 5 m.m. in diameter, and react to light and accommodation. The fields of vision differ, are very much contracted, more so on the right, as can be seen by accompanying charts. There are no ocular palsies.

*Motor Apparatus.*—The right upper facial territory is uninvolvement, the right middle and lower facial areas show a flattening out of the lines of expression, and the right angle of the mouth droops. This hemiparesis is made more evident when she is asked to whistle, uncover her teeth, etc. The right upper extremity shows marked weakness as compared to the left. The shoulder muscles are weak, so that she cannot raise her hand above her head. There are no contractures and no atro-



phies, but there is some rigidity on passive motion. There are no athetoid or choreic movements of the fingers, but associated movements are very distinct whenever the left hand executes movements. The gait is of the typical hemi-paretic-spastic variety. The patient swings her leg in an arc of a circle, foot in equino-varus position. There is no shortening or atrophy of the paretic limb.

*Reflexes.*—The wrist, triceps, knee and Achilles reflexes are bilaterally exaggerated; the right more so than the left; no ankle clonus. Neither the Babinski nor Oppenheim sign can be obtained. Heart and lungs are normal. There are no visceral disturbances of any kind.

*Sensation.*—On the paretic side slight tactile anesthesia and some hypalgesia can be demonstrated.

Snuffles, suspicious eruptions, chronic hydrocephalus, condylomata, chronic oozena, destruction of hard palate, osteophytes on long bones, disseminated choroiditis, deformed

teeth, interstitial keratitis,—point indubitably to lues hereditaria.

The hemiplegia was probably caused by thrombosis with softening and later cicatrization. The gradual onset, the recurrent incomplete attacks, absence of unconsciousness, and the aphasia, point to arterial thrombosis, while the Jacksonian fits would indicate cortical irritation, and in this instance point to the existence of scar tissue in the Rolandic area. The age of the patient (seventeen years), the lues hereditaria, and gradual and repeated development of hemiplegic attacks, and the further course of the disease, make the diagnosis of brain syphilis certain.

IV. *W. E. C.*—Age twenty-five; single; was a telegraph operator until about four years ago. At present he is a medicine and newspaper vender.

*Health History.*—He was born at full term in normal labor. When about two to three months old is said to have had moist papules around anal margin and rhagades about oral ring. At the age of four months he had a generalized eruption. He had measles at about six years, and typhoid fever eight years ago. At fifteen he had what he calls “shingles,” a vesicular eruption. When about five years old and up to his tenth year he suffered from enuresis nocturna and diurna. After this there developed difficulty in emptying the urinary bladder, slight at first, but at the present time more aggravated.

*Habits.*—For two years, up to quite recently, he was a heavy drinker. For the past four months he has been a total abstainer from alcoholics.

He has never sustained any injuries.

*Present Illness.*—In 1896 he accidentally discovered that his right eye was totally blind. Shortly thereafter vision began to fail in the left eye and for one year and a half he has been completely amaurotic. About five years ago he developed characteristic lightning-like pains in the lower extremities. They were very severe at first, and each attack would last from two to three days with slight remissions. At the present time he is only infrequently annoyed by these pains and they have lost their former severity. A peculiar numbness and tingling in the lower extremities appeared soon after the shooting pains had begun. Added to this there was a feeling as though he walked on rubber. Quite recently he experienced pains which begin in the hypochondriac region and extend almost circularly to the spine, and which give him a sensation of a band tightening about his body.

*Status Præsens.*—General appearance rather youthful, beardless and feminine. No asymmetry of face and skull. Radiating from each corner of his mouth are the silvery white lines

typical of inherited syphilis. The teeth are well-formed and there is an abundance of pubic hair—but the testicles are infantile in size. Heart and lungs are normal, the pulse is regular. The abdominal viscera are normal. Bony deformities, and peripheral arteriosclerosis are absent, the superficial inguinal glands are slightly enlarged, but no epitrochlear or cervical glands can be felt. There are no visible scars on the trunk, but at the anal margin are distinct radiating lines, probably scars of former condylomata. There is a perforation of the nasal septum.

*Eyes.*—Dr. Woodruff, who treated the entire family for eye trouble in 1900, has kindly communicated to me the result of his findings at that time. He found complete optic atrophy in both eyes. Vision of the right eye, hand movements; of the left, 5-200. Fields of vision showed marked contraction for white, with doubtful color perception.

At the present time there is a slight drooping of the left upper eyelid and paresis of the left internal rectus; the eye does not rotate beyond the middle line when the patient looks to the right. When this oculomotor paresis first occurred is unknown, but evidently after he became completely blind, or diplopia would have been noticed. Both pupils are widely dilated, the left a trifle more so than the right; neither responds to light nor to accommodation. The blindness is so complete that not even light can be distinguished from darkness. Both optic nerves present a snowy white appearance with distinct definition, and almost total disappearance of the vessels.

With the exception of the above-mentioned partial paresis of the motor oculi, no muscular weakness can be detected; no tremor in fingers and hands.

*Sensation.*—Slight paresthesia, lightning pains and girdle sensation are complained of. *Objective.*—Tactile, pain and temperature senses are intact, except that in a few isolated spots on the anterior surface of the legs a pin prick is first noticed as a touch and a little later, as an intense and prolonged pain. Firm pressure of the right testicle causes a sickening pain; pressure of the left is first felt as touch and a little later he cries out from pain. The sense of position is unimpaired in the hands; in the toes of the right foot flexion was mistaken for extension; and he was entirely unable to indicate the position of his left toes. Osteosensibility is greatly reduced according to Egger's tuning-fork test (small C, 128).

*Coordination.*—Ataxia of station and of motion, already noticed by the ophthalmologist in 1899, is well marked. Though not extreme it can be readily elicited by the heel-to-knee test. In the upper extremities the ataxia is less marked on the right than on the left side.



Under this heading I might also mention a peculiar ataxia of the tongue and facial muscles. When the patient protrudes the tongue there is a constant forward and backward swaying of the tongue, resembling somewhat the lateral swing of a pendulum. It is coarse and dissimilar to any tremors that I have seen.

The facial muscles show a peculiar quiver when in action. Oppenheim mentions the existence of ataxia of facial and tongue muscles in tabes as rare.

*Reflexes.*—Abdominal and plantar reflexes are normal; the cremaster cannot be obtained on either side. McCarthy's supra-orbital reflex is present. Deep reflexes are absent.

*Sphincters.*—While the patient suffered from incontinence of urine up to his tenth year, he can now hold his urine very well, in fact, too well. He has great difficulty in emptying his bladder. Constipation is obstinate.

*Psychic Functions.*—The intellect is not impaired. He is good in arithmetic, reasons well, and attends to his business without mistakes. His usual cheerful disposition has remained unchanged. Although he finds fault with his memory of late, I have been unable to discern any kind of psychic deterioration. About four months ago a peculiar speech disorder developed, which has the attributes of both the paretic and the scanning speech, and which is very difficult to describe. When asked to repeat the usual paradigmata, "Peter Piper," etc., "Round a rugged rock," etc., he shows some degree of syllable slurring. But in conversation he seems rather to scan his words and leaves out no syllable. In the absence of any, even the slightest, psychic alterations, I am led to attribute this speech disturbance to the lingual and facial ataxia mentioned above.

On April 8, 1904, the patient was suddenly taken ill with symptoms of acute cold. Two days later he developed a right lobar pneumonia and was transferred to Wesley Hospital. During his entire illness the temperature did not rise above 102.4 degrees F., but he was delirious most of the time and had to be kept in restraint. There was an uneventful recovery and the patient left the hospital April 24. Upon my visit to his house one week later I found him in excellent spirits. He said his nerves were steady and he felt strong and well. In his demeanor he was rather quiet and so were his facial muscles. The twitching previously observed was reduced to a minimum and even the left-sided ptosis previously noted was ill-defined. The tongue was less tremulous than it had been before his acute sickness, and his speech was almost normal. An improvement in the nervous symptoms of patients affected with chronic nervous disease has often been observed after the subsidence of a complicating acute infectious disease.

Simple enumeration of the symptoms leaves no doubt of the diagnosis of juvenile tabes, to wit: loss of deep reflexes, ataxia, rigid and unequal pupils, primary progressive optic atrophy, ptosis, lightning pains, bladder disturbances, girdle sensation, paresthesia. One must bear in mind, however, the two disorders for which juvenile tabes has so often been mistaken: Friedreich's ataxia and cerebrospinal lues.

Friedreich's ataxia, according to Charcot's<sup>2</sup> beautiful lecture, may be clinically thought of as a combination of tabes and multiple sclerosis. In this disease there is the hereditary and family element, the ataxia is cerebellar in type and occurs both at rest and in motion; there is a chorea-like oscillation of head and trunk; upper extremities are early involved; kneejerks are lost late; bladder disturbance is rare. There are no lancinating pains; sensory disturbances, if present at all, are slight; there is scanning speech, nystagmus, scoliosis, club-foot, paresis in peroneal region, vertigo and disturbance of intelligence; no amaurosis, optic atrophy, nor Argyll-Robertson pupil. It will be observed that neither this description nor that of an author such as Schmid,<sup>3</sup> and others, show any similarities with my case.

As for cerebrospinal lues, it is certainly possible for that disease to assume the mask of tabes until discovered on the post-mortem table; or syphilis and tabes may both be present, as in the observations of Sidney Kuh,<sup>4</sup> who found degeneration of the posterior columns and, in addition, a distinct cerebrospinal meningitis. Martin Brasch<sup>5</sup> has described the anatomical findings of syphilis of the central nervous system in a patient who, during life, presented a typical picture of taboparesis. Minor,<sup>6</sup> Dinkler,<sup>7</sup> Sachs,<sup>8</sup> Nonne,<sup>9 10</sup> have reported similar cases. H. Schmaus<sup>11</sup> even speaks of the difficulty in the correct anatomic interpretation of sclerosis of the posterior columns where luetic spinal meningitis is also present. In the present state of our knowledge, if the lesions of spinal syphilis exactly coincide in location with those of tabes there are no positive differential signs. One might emphasize the importance of searching carefully for evidences of focal disease, such as vertigo, spasm, localized paresis, symptoms indi-

cative of gross brain disease, optic neuritis; that primary progressive optic atrophy is as frequent in juvenile tabes as it is rare in cerebrospinal lues; the history will, in doubtful cases, also give additional help.

Another objection might be urged against my diagnosis of juvenile tabes on account of the speech difficulty and the tremulousness of tongue found in the patient. The point might be made that this is general paresis with absent reflexes, and ataxia. Against this is the fact that there are absolutely no psychic defects and that the patient is capable of managing his business without a flaw. It may be argued that this is tabes complicated by dementia paralytica. There can be no certainty on that point. Eulenburg<sup>12</sup> states: "A facial paralysis in tabes is rather rare, is incomplete and transient. Still rarer is a tongue paresis with disturbances of speech. In these cases the paresis is central." And Charcot<sup>2</sup> says: "In genuine tabes there is never any speech difficulty. Of course speech disturbances might also be found in genuine tabes, but in those cases there is added to the tabes a general paresis." According to the latter author my case with the imperfect speech and somewhat tremulous tongue and facial muscles would probably be tabo-paresis. On the other hand, Oppenheim<sup>13</sup> says: "Ataxia but rarely attacks the facial and tongue muscles and leads to a peculiar speech disturbance depending upon excessive movements of lip, tongue and jaw muscles." This must be one of those rare cases. Binswanger,<sup>14</sup> in speaking of tabo-paresis says: "For years there may be only tabes; then develop the ethical defects, the change in the affections, etc., while intelligence and memory may for a long time remain intact." No ethical defects are found in my case.

To sum up, we have an uncomplicated case of juvenile tabes in which syphilis is next to being proven in both ancestors and in all their offspring. The patient himself has the marks of syphilis on his person, however mild the disease may have been. Brasch<sup>15</sup> may be correct in saying, that it almost appears as though those syphilitics who are to develop tabes are by that reason immune from frequent relapses of genuine syphilis.

Referring once more to the frequency of juvenile tabes, it



may be recalled that in 1892 Hildebrandt<sup>16</sup> critically examined all the cases reported up to that time and rejected all but 10 as belonging to Friedreich's disease. S. Kalischer,<sup>17</sup> still further reduces that number. Dydynski<sup>18</sup> reports a case of his own and includes in his report the three cases of B. Remak,<sup>19</sup> one of Strümpell,<sup>20</sup> one of Mendel,<sup>21</sup> one of Bloch.<sup>22</sup> All others he counts among Friedreich's disease. And now comes Brasch<sup>15</sup> in 1901, adds a case of his own and after criticizing Kalischer for striking out B. Remak's 3 cases, counts up 8 genuine cases. V. Halban<sup>23</sup> reports 3 cases that appear to have been genuine, and later another case<sup>24</sup> which can withstand criticism. Bloch's<sup>22</sup> first case is doubtful. In the discussion which ensued after presentation of his case in the Berliner Gesellschaft für Psychiatrie und Nervenkrankheiten in 1896, the late Professor Jolly called attention to the psychic disturbances and the convulsions and referred these to the gross brain lesions of cerebrospinal lues. Professor Oppenheim on the same occasion emphasized the fact that the symptom-complex of tabes in childhood is often due to syphilitic disease of the nervous system; he also doubted the diagnosis. Bloch's<sup>25</sup> second case, reported in 1902, seems to be a genuine case, but lacks a history of syphilis. Otto Marburg,<sup>1</sup> describes in detail a case of infantile tabes, but his case is not quite clear. However, he has constructed an elaborate table covering the entire bibliography on the subject. He finds 34 cases in the entire literature and includes in his table some of the doubtful cases, but omits all cases after the age of twenty-one. Dr. R. T. Williamson, of Manchester, reports three genuine cases of juvenile tabes in the June, 1904, number of the *Review of Neurology and Psychiatry*. The words infantile and juvenile, as referred to tabes, are used indiscriminately by most writers, and they all seem to agree that juvenile does not differ from adult tabes in its symptomatology.

Dydynski,<sup>18</sup> however, sums up the peculiarities of juvenile tabes as contrasted with ordinary tabes in the following: (1) Vesical disturbances, and (2) optic atrophy appear early; (3) ataxia is either absent or late in appearing.

From a perusal of the literature I am led to agree with the last-named author that optic atrophy, vesical trouble, sensory disturbances, are among the early symptoms of juvenile

tabes, and that syphilis has invariably been present in the antecedents of all patients. I cannot see how the opponents of the syphilis-tabes theory can ignore the latter fact. It was in order to silence the new opposition emanating from a Berlin clinic that caused Professor Erb<sup>26</sup> to come forth with a new series of statistics. He again figures out 90% of syphilis in the etiology of adult tabes and points to juvenile tabes as unqualifiedly caused by syphilis.

One of the most recent writers on the pathology of tabes, Homén,<sup>27</sup> accepts the post-syphilitic view of tabes and the theory that the metabolic products resulting from the action of the syphilitic toxins upon the tissues produce the degenerative nerve disorders, tabes and general paresis. The best support for this view can be found in the cases of juvenile tabes where none of the other contributing factors, such as excessive alcoholic and sexual excesses, come into play. The children with congenital or early acquired syphilis who have escaped destruction or severe mutilation have probably harbored an attenuated virus, the chemical products of which were not sufficiently violent to cause inflammations, but were still capable of producing degeneration of nervous tissue, of which tabes is an example.

As regards the oft-debated question, which is the more important, the soil or the morbid agent, in determining the character of the particular nervous disease to be produced, opinions are still divided. While some consider the neuropathic constitution the all-important factor, others lay more stress upon the peculiar quality of the virus as productive of certain nervous diseases. For instance, Babinski,<sup>28</sup> in discussing cases of conjugal tabes reported by him and others, says:—"These experiences establish the existence of a special form of syphilis affecting preferably the nervous system, irrespective of the soil. There must, therefore, be a variety of syphilis with a peculiar predilection for the nervous system, and persons contracting syphilis from such source are liable to have nervous syphilis. In the case of syphilis of the conjugal variety—if the syphilis be of the nerve-attacking species—the manifestations will occur in the nervous system, but chance alone will determine whether they will appear as tabes, general paresis,

or other gross brain lesion." And again, A. Souques,<sup>29</sup> after having presented before the Neurological Society of Paris a couple affected with conjugal tabes, takes occasion to reflect upon the etiology as follows: "Is it only coincidence when both parties become affected in the same way and is the syphilitic infection caused the same as in single persons, or is there a certain form of syphilis that always selects a certain tissue in the body? It is certain that not all forms of syphilis produce the same effects, for tabes is still rare among syphilitics. It must be admitted that only certain kinds of syphilis seem to enjoy that privilege on account of their great virulence upon nervous tissue." He accepts the hypothesis of MM. Morel-Lavallée and P. Marie, that there is a specific virus of nervous syphilis. To further support his contention he refers to the work of MM. Besançon and Labbé, who proved experimentally that ordinary pyogenic staphylococci taken from a suppurating joint and injected into other animals, either intravenously or subcutaneously, show a tendency to localize themselves around joints. He thinks their previous sojourn in a joint has modified their virulence and communicated to them elective properties. It is possible that the virus of syphilis may in a similar manner acquire a particular preference for the nervous system; and in no series of cases can this be better illustrated than in conjugal tabes where the syphilitic infection is most usually acquired from a single source. Cases of nervous syphilis have been published that were derived from a single source and resulted in the production of identical symptoms. He further refers to Morel-Lavallée who cites 5 cases of general paresis which had their origin in a single source of infection. The following report of Marie and Bernard<sup>30</sup> supports the same view. They relate the case of two friends from the country who came to Paris together. Shortly thereafter they contracted syphilis in the same way and from the same woman. In 1890 one had the first symptoms of tabes, the disease showing itself first by ocular disturbances. One year later the other showed symptoms of the same disease which manifested itself in the same manner. Two years later both were suffering from typical tabes dorsalis with the lightning-pains and incoordination well marked.



Max Nonne<sup>31</sup> relates two similar experiences where individuals became infected with syphilis by one and the same source and later developed either syphilis or parasyphilis of the nervous system. In one case, of the three individuals who together worshipped at the shrine of Venus one became tabetic, the others developed general paresis. In his second observation, of two merchants who exposed themselves to the same source, one developed a severe cerebral lues, the other a syphilitic spinal paraplegia with pupillary rigidity.

Coming back to our case of juvenile tabes and the other nervous disorders in that family, we might ask: which was the more important etiologic factor, the neuropathic family tendency or the specific syphilitic nerve-virus? It would be difficult to give a correct answer. If we are to assume that there is an inherent tendency to nervous disease in that family, which tendency was made still more powerful by the fact that the parents were first cousins, we should probably feel satisfied, were it not for the fact that no neuropathic history can be found in the family record. Might we not consider our case as an additional proof supporting the theory of the French authors that there is a specific nerve-attacking syphilitic poison? The father, being the *fons et origo* of this family's difficulties, died before the so-called syphilitic nerve-virus had created disturbances in his own body, but not before he had transmitted the disease to his wife and children. And now began a process of selection of certain members for certain of the organic syphilitic nervous diseases, which may not altogether have been determined by chance. The mother, for instance, having had a very mild form of lues, but having undergone the stresses of a sharp struggle for existence, developed tabes dorsalis. The first child, a male, developed mild lues and during the stress of puberty, tabes. The second son, the most intellectual of all the children, died of general paresis, a disease that selects with preference a highly developed brain. It is possibly for this reason that savages and semi-civilized peoples have a great deal of syphilis and little or no general paresis. During pregnancy with her last child the mother suffered from a recrudescence of syphilis, as may be recalled from the history, and a girl was born with the stigmata of a rather severe type of syph-

ilis. The brunt of the attack was spent upon her arterial system, causing grave cerebral disturbances—but this probably made her immune against the post-syphilitic diseases, as is stated by some authors.

In conclusion I desire to express my thanks to Prof. Hugh T. Patrick, who so generously placed the material at my disposal, and who offered me most valuable suggestions in the preparation of this article. I also wish to thank Dr. Thos. A. Woodruff<sup>32</sup> for his valuable ophthalmic records.

NOTE.—When the manuscript for this article was completed my attention was called to the fact that Dr. H. N. Moyer<sup>33</sup> has had an opportunity of examining the entire C. family in 1899. His report mentions distinct Argyll-Robertson pupils in the case of juvenile tabes and a positive diagnosis of general paresis in the case of T.—the Doctor having examined the boy during life. L., now the subject of hemiplegia and epilepsy, was perfectly well at that time.

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#### AN ADDITIONAL CASE OF PRECOCIOUS TABES.

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The following case, from the practice of Dr. Hugh T. Patrick, may be of some interest in connection with the preceding report. The case itself is rather unusual, as one of early tabes without evidence of syphilitic infection, with an exceptionally long course and with fragilitas ossium.

N. J. C., fifty years old, was seen September 3, 1900; family history negative. He is the oldest child, the next being seven years younger, and healthy. The patient has been married twenty-nine years, and has two healthy children of twenty and twenty-seven years respectively. Two children died—one at six weeks, of croup, the other quite young, of an accident.

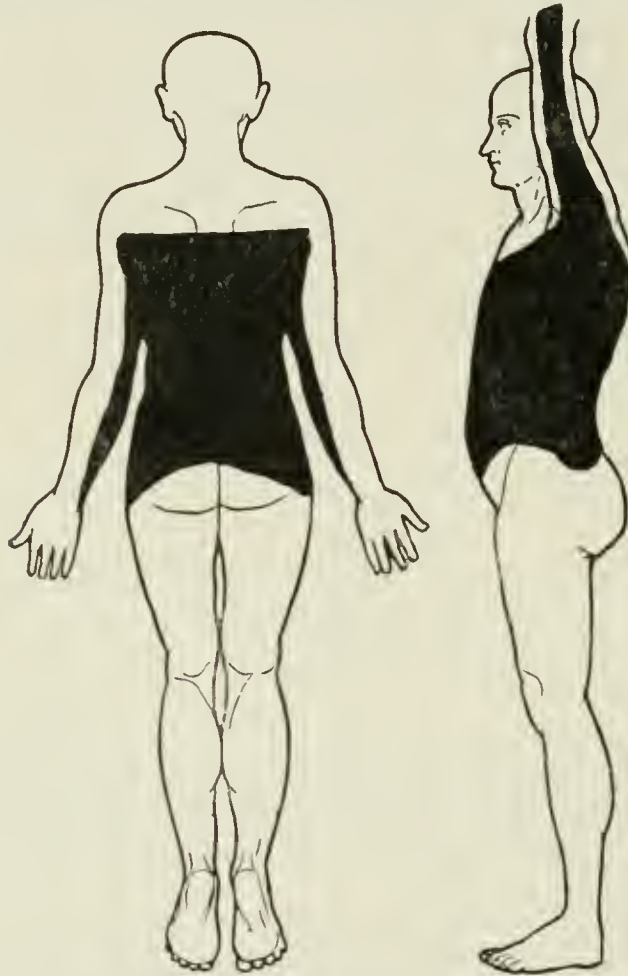
The personal history is negative up to the beginning of his present trouble. When twenty-two years of age he began to suffer from sharp, shooting pains. They were severe and shifting, most severe in legs and arms, slighter and less frequent in the trunk and never invaded the head. At first these attacks occurred about once a month and lasted from a few hours to a day. Each one consisted of a sense of sharp pains, in duration from an instan-



taneous flash to a half minute, and occurring about two to five minutes apart.

Generally they involved either arms or legs; at times both. Gradually the attacks became more frequent, until they occurred almost daily.

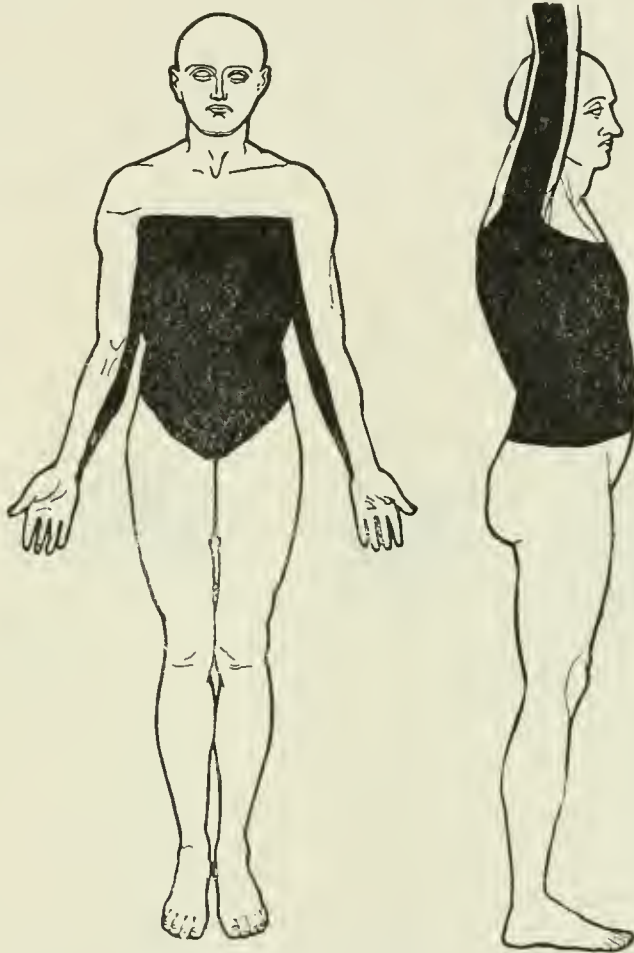
The pains began about the time he located in a malarial district, and were attributed to malaria. After five years' residence there, malarial fever with enlarged spleen caused him to remove to Colorado, where he remained for a year. During that time he



Sept. 3, 1900.—Tactile anesthesia, tested by very light touch, begins at third rib; lower border rather indistinct.

had no pain. He then went to Western Kansas, also free from malaria, when the pains returned, and have continued ever since. In the last twelve years the longest free interval has been a month or two. The pains have been so severe and frequent that the patient complains of nothing else; but to questions replies that of late it has been difficult to start the flow of urine, sometimes very difficult; and that he has been somewhat unsteady on his feet.

In 1882 the patient sustained a fracture of the left femur, middle portion. The cause of this fracture appears to have been quite insufficient to produce such a result in a healthy individual. In lifting a weight not to exceed seventy-five pounds he "sort of wrenched" his leg, and the thigh snapped. Again, in 1884, while getting off a slowly moving train, and as his right foot struck the ground, the right thigh fractured. Two other men, one 225 pounds in weight, got off the train at the same time, without the least difficulty.



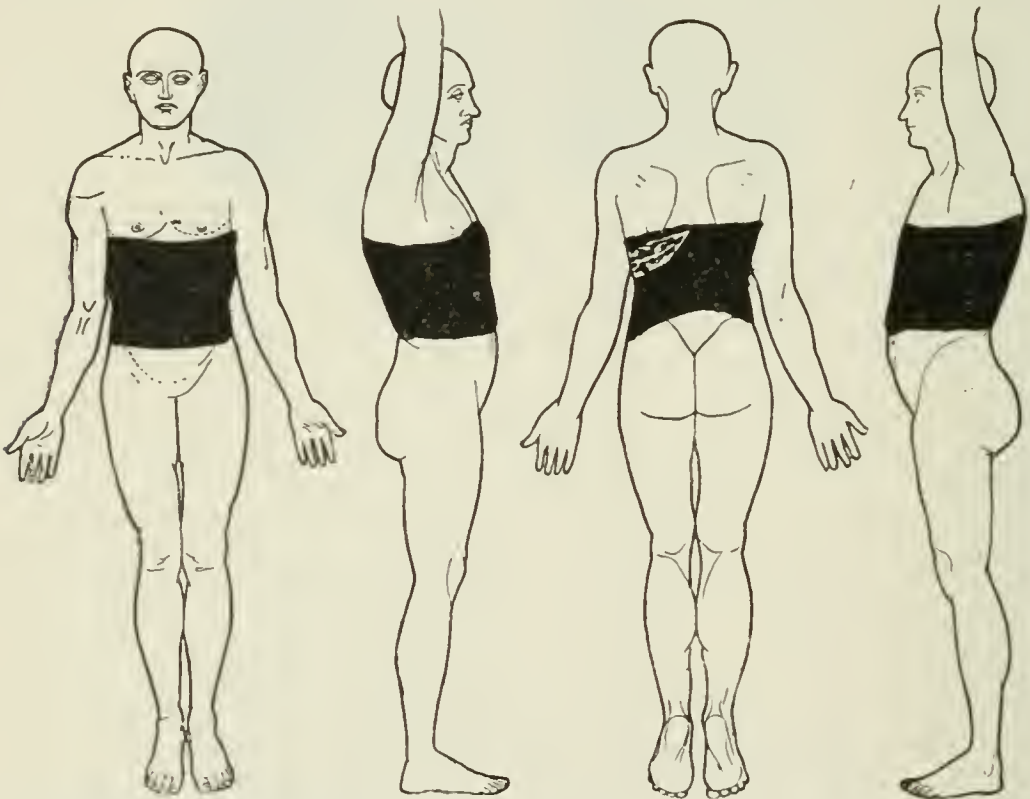
Sept. 3, 1900.—Tactile anesthesia, tested by very light touch, begins at third rib; lower border rather indistinct.

*Status Præsens.*—The patient is well nourished and presents no symptoms of visceral disease, nor evidence of paralysis or paresis. He has a slight convergent squint. Vision for distance was never very good. There are the typical Argyll-Robertson pupils and the Romberg sign. Incoordination is well marked in the lower extremities, slight in the upper extremities. There is distinct ulnar analgesia (Biernacki's sign), some analgesia and anesthesia of the legs, and decided trunk anesthesia. (See diagrams.)

In the month of August of this year the patient came under the observation of Dr. H. G. Brainerd, of Los Angeles, Cal., to whom I am indebted for the following report:

The patient is well nourished, although rather pale. He comes complaining of pains which are lightning in character and which occur at intervals of a few minutes to several hours apart. The seat of pain may be anywhere in the body: face, arms, trunk, legs; but of late the pains have been more persistent in the upper extremities and especially in the right forearm.

An examination shows normal sensation in left foot, while in the right foot the sense of position and pain sense are greatly impaired. Pressure upon the ulnar nerves does not cause pain. No areas of analgesia can be detected, and there is no delayed conduction of sensation. The following chart indicates the amount of trunk anesthesia as obtained by light touch with wisp of cotton.



August, 1904.—Tactile anesthesia; lighter strip in back indicates almost normal condition.

(It will be observed that there is some contraction as compared with chart of 1900.)

Bladder and rectal disturbances are absent, but occasionally there is a girdle-sensation at the lower border of the thorax. The deep reflexes are absent, while the superficial reflexes are active. There is some ataxia of station and gait when the patient closes his eyes.



SUBCORTICAL CYST AND FIBROMA DUE TO TRAUMA PRODUCING JACKSONIAN EPILEPSY, CURED BY OPERATION.

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In the summer of 1902 a young man, nineteen years of age, presented himself at the nervous dispensary of the Presbyterian Hospital complaining of weakness in his arm and leg. He had been employed as a grocer's boy for some years, until the increase of weakness of his arm and leg made it impossible for him to continue at this occupation. When he came under observation he gave a history of having had about a year previously certain convulsive symptoms, especially on the left side of his body, and especially in his left arm and the corresponding side of his face. The description given of these evidently pointed to the fact that he was suffering from true Jacksonian epilepsy. Further inquiry into his history seemed to indicate that his condition was very probably traceable to an injury received about five years before.

His family history was negative, both as regards tuberculosis and the occurrence of neoplasms. His own previous history with the exception of the injury to his head had very little that was of interest before the beginning of his present illness. He had whooping cough and measles as a child, but without any sequelæ. He had never used alcohol to excess nor, indeed, indulged in it to any extent at all, and he denied all venereal infection. His mother said that he had suffered from malaria and rheumatism, but the symptoms she gave of these diseases made it very dubious whether they had really been present. The boy had grown rather rapidly between twelve and fourteen, and as a consequence had suffered from that tired feeling which a few years ago at least was supposed to indicate malaria. He had begun hard work rather early in life, and occasionally complained of pains around his joints, which were worse on rainy days, and this was supposed to justify the diagnosis rheumatism.

There is no direct history of either of these affections, the patient has never lived out of Manhattan Island, and is very little likely to have contracted real malaria, and he did not have the red, swollen joints of true rheumatism.

A very interesting and important item of his history, however, is that five years ago, while working on a new building, a barrel fell from the sidewalk above his head, a height of about five feet, and struck him just above and behind the right ear. He did not lose consciousness at the time, and refused to permit the doctor whom he visited after the accident to put any stitches in the scalp wound which occurred at the time. The wound healed perfectly, leaving scarcely any trace except a linear scar on the scalp, and until very recently he has had no further symptoms pointing to any serious injury of the head at that time. Some three years after the accident mentioned, however, just after going to bed one night, a sharp pain, which began in his left hand, crept up his arm to his shoulder, while at the same time there was a twitching of his fingers. After a while his wrist and then his arm and shoulder were drawn up, and finally a pain and a sensation were felt, as though his face on the left side were contracted. After this he lost consciousness, remaining unconscious for some twenty minutes to a half hour.

He then awoke, feeling, as he says himself, perfectly well. On closer questioning he confesses that there was a tired feeling, but of this he didn't make much account. In general it may be said with regard to him, that he is one of these phlegmatic individuals who do not notice pain or discomfort very much, and the only thing that bothered him really was the weakness of muscles which began to develop. After this first seizure there was no paralysis, stiffness or pain in his arm or face. Just before he became unconscious, however, he thinks he remembers that the spasm became very severe, and his whole arm was stiff, that is, was in firm tonic contraction. Occasionally after this he had slight pains in the wrists, arm and shoulder, with some muscular spasm. These came on in attacks, which recurred more and more frequently. At the end of two weeks they were recurring nearly every day, though they did not produce any special disability.

After two or three months he had an attack exactly similar to the first one, while sitting quietly in a chair at his work. This attack lasted only fifteen minutes. On waking he walked home a distance of several blocks, without delay, and without discomfort, though he felt weak on his left side and limped at first, but only for a few minutes, when he regained his strength entirely. For a month after this, except for the slight twinges of pain, with occasional twitching, which recurred every day or so, he had no further symptoms of his affection.

Then, one day, while pushing a grocer's cart, he felt the pain and spasm beginning in his right arm, and realizing that it was severer than usual, and that he was going to have one of his attacks, he ran toward a stoop to sit down. Before he got there, however, as he says himself, he began to go sideways, bumped

into a wall and fell down, losing his senses. This attack lasted more than half an hour. His left side felt weak after this, his left leg dragged a little, and he staggered toward this side. These symptoms lasted, however, only for a short time. Then he was able to go on with his work again without any bother.

This attack occurred two years and eight months ago, and he has not had a similar attack since. He had slight attacks of pain and twitching for some time afterwards, but these gradually grew less noticeable and less frequent, and stopped entirely over a year ago. For the last three months, however, a new set of symptoms has developed, and he and his friends have noticed that he throws his left leg about awkwardly, which produces a decided limp, and his arm has been gradually getting weaker, until now it is so paralyzed as to be useless.

About two months ago he suffered from a very severe headache. It came on at night while he was asleep, without known cause, grew steadily worse until midnight, when he suddenly vomited violently. After vomiting the headache became somewhat better, and entirely disappeared before the next morning. At first the pain was all over the head, as it grew more severe, it seemed like an iron band about his head. After the vomiting he felt the pain almost exclusively in his temples and eyeballs. One week later he had another bad headache of the same kind. This came on about the same time at night. He vomited about midnight once more, and the pain in his head left him in the early morning. Six weeks later there was a third attack of headache, just like the other two, only that it continued to grow worse until eight in the morning, when he vomited, and then the headache disappeared within a short time.

This was his history when he came under our observation, asking for treatment for his headache, for the weakness of his left leg, and for almost complete inability to use his left arm. We found him well nourished, not at all anemic, and his tongue moist and clean, was protruded in the median line, through there were some fibrillary tremors present in it. His post-cervical lymphatic glands were enlarged, his pulse full, soft and regular, his heart normal in size and in action, but with a faint blowing systolic murmur at the apex. Careful physical examination of all his other organs showed no abnormalities except in his nervous system.

His pupils are equal and react to light and accommodation, though there is some evidence of facial paralysis on the left side. He talks somewhat thickly, but there is no alteration in his faculty of speech. His left arm is almost completely paralyzed, though there is some small amount of power left in the shoulder muscles. The arm is quite rigid in adduction and with the forearm flexed. The muscles are soft and flabby, but evidently only from disuse, as



they show practically no wasting. The muscle and tendon reflexes in the arm are increased. Whatever muscular atrophy is present is more marked in the forearm. His left leg shows distinct loss of power, though he can move it in every direction. The muscle and tendon reflexes in this limb are exaggerated, and Babinski's sign is present. Ankle clonus could be elicited without difficulty.

Careful examination of his eye-grounds was made and marked optic neuritis was found in each eye by Dr. Parker, who also found the vessels tortuous and dilated with choroidal atrophy in the region of the nerve-ending. The optic disc in each eye was swollen about two millimeters. In general the pathological conditions present were found to exist to about the same degree in both eyes.

Some of the most important symptoms were found in the sensory disturbances in the affected arm and hand. The deep muscular disturbance was very marked, and he could not tell the positions of his fingers, and was not able to state with any confidence the position of his hand or the amount of angular movement in his elbow. His tactile sense in his fingers was extremely blunted, and below his elbow was distinctly less than on the other side. Pain and temperature senses were not disturbed. There was distinct astereognosis, and such familiar objects as a pencil, a knife, or a coin, could not be distinguished when placed in his hand.

The diagnosis of the case, as made by Dr. Schlapp, was cranial neoplasm, the reasons for this diagnosis were to be found in the characteristically developing symptomatic picture, to be traced in the history and in the present condition. The original injury followed after some years by Jacksonian epilepsy with distinctly focal symptoms, then later the severe attacks of pain, followed by vomiting without any special reason for it on the part of the digestive tract, and then the gradually developing weakness of the arm and the leg with some involvement of the face, with the choked discs and the sensory disturbances all pointed definitely to the existence of an intracranial neoplasm. In so young a patient it seemed eminently advisable to try what could be accomplished by operation.

The outlook after operation depended, however, to a very large extent on the nature of the tumor that might be present. The very slow growth taking years for its increase to such a size as to produce symptoms pointed either to the existence of a glioma, or a very slowly-forming cyst. The injury might have given rise to scar tissue, the irritation of which would eventually produce gliomatous growth, but it was more likely to have produced cyst formation, and it was hoped that this was the pathological condition that would be found, since the prognosis after the removal

of a cyst from the cerebrum is much better than that of glioma, and is, indeed, as a rule, very favorable.

The position of this tumor was evidently in the posterior central convolution back of the second frontal convolution, not exactly in but in the neighborhood of the arm and leg centers, and involving them indirectly by pressure rather than directly.

Accordingly, he was referred to the surgical wards of the Presbyterian Hospital, where he was operated upon by Dr. Wolsey. The usual incision for the examination of the area near the fissure of Rolando was made, and a horseshoe-shaped flap of scalp turned down. The opening through the skull was made by means of an electric saw. The pericranium and bone were lifted in a single flap. As the scalp was rather vascular it was found necessary to tie a rubber tube as a tourniquet around the skull below the field of operation. This controlled the bleeding very well, and no further difficulty was experienced from the severed vessels.

As soon as the flap of skull was lifted, the brain bulged through the opening somewhat above the level of the skull, though still, of course, covered by dura and retained by that membrane. The color of the bulging part was rather yellow, and the usual pulsation noted when normal brain substance is exposed was not present. An incision was made into the dura, and the brain bulged still further through it at the base of the flap, gradually becoming bluish in color. Shortly after the incision in the dura the bulging brain tissue ruptured, discharging a stream of yellowish, slightly turbid fluid, about four or five drams in amount, which spurted some eighteen inches high. This was found to come from a cyst close under the surface of the brain. After this evacuation of the cyst the brain began to pulsate. The flap of dura was then elevated, bleeding points in the brain tissue were secured with fine catgut on a curved needle, and the opening in the cyst wall enlarged and the cyst explored with the finger. It was found to be two inches long in diameter, of oval shape, and containing within it a pedunculated, nodular tumor of medium consistency, more or less spherical, about one and a quarter inches in diameter, and attached to the inner cyst wall at the upper posterior portion. After enlarging the opening this tumor was easily removed, shelling out without noticeable bleeding or laceration of tissues.

It was considered advisable then to make a small opening in the edge of the bone flap through which to allow a small strand of drainage tissue to be carried. The wound was then closed, the dura with catgut and the scalp with silk. The condition of the patient remained good all during the operation.\* The pulse, which was 120 at the beginning, gradually rising to 155, but remaining of fair quality all during the operation, which lasted an hour and a quarter.

The etiology of the cyst thus removed is not difficult to understand. The severe injury to the head five years ago caused either the rupture of a small artery with hemorrhage, though not of large size, or caused thrombosis, and interruption of the circulation to a small portion of the subcortical region, with consequent softening. This, of itself, was not large enough at the time, to produce any focal symptoms.

Following the softening of the tissue there must have been a proliferation of the connective tissue as well as from around the blood vessels. This process eventually led to the formation of the wall of fibrous tissue about the area which had become softened, separating it completely from the normal brain tissue in the neighborhood. In time the broken-down tissue within the cyst, the detritus of degenerate cells was carried away by fat granule cells and also epithelioid cells, leaving the fluid in the enclosed connective tissue cavity quite clear. From the fibrous tissue wall the tumor in the case developed. In the course of its development the pressure within the cyst was gradually increased, until after some time pressure symptoms became noticeable.

That this cyst was not of congenital formation, due to an anomalous pinching off of some portion of the lateral ventricle, a not very unusual incident, or to some other malformations of the ventricles during embryonic life, is clear from the fact that in that case it would have been lined by ependyma cells. The existence of a fibrous tissue tumor within the cyst showed that it was not ependymous in origin, since a tumor springing from that sort of tissue would have been a glioma. As can be seen from a microscopic section of the tumor, it is true fibroma, a connective tissue tumor, and it very likely developed from the cyst wall after this had already been formed. The cortex of the brain was intact above the tumor so that it was not an ingrowth from the pia.

This tumor was connected at one portion of the lining of the cyst and derived its nourishment, being rather freely supplied with blood vessels from this part. The tumor was not of very firm consistency, but was distinctly fibromatous in character, and even appeared so to the naked eye on section.

It seems probable that there will be no recurrence of the symptoms. Much of the pressure exerted by the cyst was probably due to the fact that the growth of the tumor gradually pushed the increasing fluid against the cyst wall, thus exerting pressure on the surrounding brain tissue. It is very probable that the absence of serious lesions in the brain tissue was due to the fact that the fluid within the cyst acted somewhat as a water cushion in neutralizing the action of the tumor upon surrounding tissue.



The pressure, too, in this way was equalized all over the cyst, thus accounting for the gradual, slow development of the symptoms.

The patient recovered from the anesthetic with only slight nausea and vomiting, and though there was a profuse serous discharge it was surgically clean and remained in excellent condition. The temperature reached 102.4 degrees F. the day after the operation, but the patient seemed to be much brighter than before. He answered questions promptly and was able to move the paralyzed arm and leg better than for months. He could put his left hand above his head, though this had been impossible just before. The grip was rather feeble in the left hand as yet, and his muscular sense was disturbed, as he could not recognize the position of his left hand when his eyes were closed. He also had astereognosis, that is, he was incapable of recognizing the character of an object held in his left hand when his eyes were closed. The second evening after the operation he complained of severe headache, and there was a loss of the motion in the left arm. The wound was dressed, and there proved to be a small bloody discharge. The next morning, however, his headache was gone and motion in his arm and leg had returned. There had evidently been an obstruction in the drainage, blood and serum having filled out the cyst again, thereby causing pressure and consequently paralysis of arm and leg.

Since the first day after the operation there has been no disturbance of the favorable course of the disease. His temperature has not been above 101, and his movements have grown steadily stronger and more capable of direction. Especially he uses the fingers much better from day to day, and his sensations are improving, though he still has astereognosis. His muscular sense is much better than it was and his pain and temperature senses are practically normal. Three weeks after the operation the patient was allowed to get up, and was able to walk quite well, though there was some incoordination of movements in his left leg. At this time he was able to recognize the position of his left thumb and first finger when they were moved with eyes closed, though his muscular sense in the other three fingers was still imperfect. The Babinski sign was still present.

When he was discharged, just four weeks after the operation, the general condition was good, there was no sign of facial paralysis, and the motions of his left arm and leg were practically normal, though his muscles were weaker than in the right arm and leg. These muscles have grown much stronger than they were before the operation, but have still not regained their normal size. The wound in his skull is closed, all but a small sinus, not more than a centimeter in depth. The bone flap united very thoroughly, and there is no depression present in the skull.

The patient has been seen within the last few weeks and he is now driving a brick wagon, and says he feels absolutely no inconvenience from the rather serious experience through which he passed. He is able to use his hands with equal force, and none of his muscles seem to be lame. He never suffers from headache, and has no vomiting and no nausea. He is, as we have said, rather phlegmatic in his character, and it is possible that his rejoicing over the fact that he is able to get back to work may suggest to him that he is quite as well as ever.

There seems no reason, moreover, to doubt what he says from his appearance, or from his gait, or from what fellow workmen say of his capability for using his hands and legs. This would seem to be one of those very fortunate cases, where, notwithstanding the existence of serious symptoms, operation led to the removal of the tumor before any serious damage had been inflicted upon the nervous system. It illustrates how much may be accomplished by localizing diagnosis and timely surgery, for without operation this young man would have been rendered incapable of earning his livelihood for the rest of his life, the span of which, moreover, would not have been very long. With the gradual increase of intracranial pressure that had taken place during the last year, it would not have been a question of much time before a fatal termination would have been imminent, because of interference with important vital functions. The complete palsy which had existed for some time in the arm and leg might have discouraged the idea of operation, because of the fear that degeneration of nerve fibers had already taken place, and the eventual outcome would not be very favorable. The patient has, however, been left practically without a mark of his previous illness.

In conclusion can be added that this case is interesting on account of the definite location of the lesion, although most of the symptoms were produced by the pressure upon the immediately surrounding tissue, evident by the complete recovery of the patient. The cyst was found to be in the posterior central convolution, back of, and pressing upon, the arm center, and upon the fibers coming from it on their way to the internal capsule. The fibers from the leg center, on their way to the internal capsule, must have been affected by the pressure, but not as much as those from the arm center. The location of the cyst is shown by the accompanying diagram.

The motor symptoms can easily be explained by the pressure on the adjoining motor centers and fibers involved. The pressure at the beginning of the lesion involving the motor cortex of the arm, produced the Jacksonian attacks; later, dur-

ing the development of the case, the pressure interfered more or less with the function of the motor fibers, causing a cessation of the Jacksonian attacks. The cortical center of the leg was not so much involved, as there were no clonic contractions of the leg muscles.

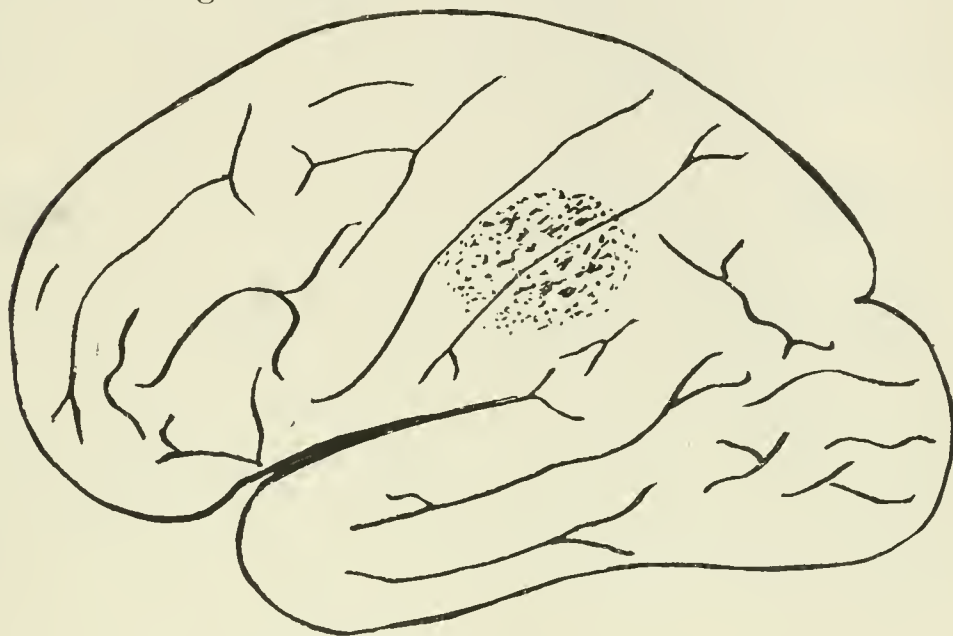


Diagram showing location of the cyst.

There was no disturbance of pain or temperature sense. The muscular sense was very much disturbed as far as above the elbow; somewhat less the tactile sense. Astereognosis was complete in the hand. All these symptoms have disappeared with the exception of the loss of the muscular sense of the little finger.

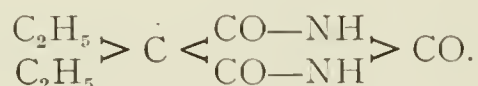
To enter into a detailed discussion upon the probable location of the cortical centers of the disturbed sensory functions would carry us beyond the scope of this article.



## VERONAL: A SHORT ACCOUNT OF ITS THERAPEUTIC ACTION, WITH CASES

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In January, 1903, Prof. Emil Fischer, director of the Chemical Department in the University of Berlin, and Prof. J. von Mering, director of the Medical Clinic at the University of Halle, published an account of their experiments with a new group of hypnotic substances derived from urea. One of the most important members of this group they termed diethyl-malonylurea. For the sake of greater convenience, the name adopted for descriptive purposes is veronal. Its chemical formula, which is  $C_8H_{12}N_2O_3$ , may be represented graphically thus:



Veronal occurs in the form of a colorless powder, which consists of minute crystals. It melts at a temperature of  $191^\circ C.$ , and is soluble in 12 parts of boiling water and 145 parts of water at  $20^\circ C.$  Its taste is slightly bitter. The average dose is 10 grains, but 5 grains up to 15 grains represent the limits within which it may be administered. Veronal should be dissolved in a hot liquid, as this not only absolutely disguises the taste, but also secures its prompt action.

Medical practitioners are apt to look askance at any fresh attempt to add to the already large number of hypnotics. The difficulty has always been to find one which shall be both safe, and at the same time sufficiently efficacious. There is, however, a certain novelty in veronal which adds not a little to the interest attached to the clinical investigation of this substance. Being an absolutely new therapeutic agent a certain degree of care has to be exercised in making experiments with it. Many so-called harmless hypnotics have a most deleterious

action on the heart and respiration, no doubt due to their effects upon the central-controlling mechanism. In our practical tests, therefore, we were particularly careful to estimate the qualities of the pulse and respiration both before and after respiration; and in cases where its administration was prolonged the urine was systematically examined, more especially with reference to the excretion of urea and the presence of any abnormal constituents.

The cases selected were such as are met with in ordinary practice, and included cases of delirium due to alcohol and to febrile diseases. Some of the cases in which veronal was administered were such as almost to preclude the use of an hypnotic. In all of these, as will be seen from the notes given below, veronal produced the desired effect without adding to the gravity of the patient's condition. Following our general rule, we kept its administration entirely in our own hands, and in this way we not only insured the patient's obtaining the requisite amount, but also its being administered at the right time and in the right way.

We shall now furnish very brief notes of a few typical cases in which veronal was used:

Case I.—J. T., æt. forty-three. Insomnia, the result of overwork and nervous strain. Patient had not slept well for some weeks. He was getting perceptibly thinner and very nervous. Did not care for food. Was put on  $7\frac{1}{2}$ -grn. doses of veronal. He took this amount regularly on four successive nights. He then omitted taking it for two nights, but, as he was becoming sleepless again, took  $7\frac{1}{2}$  grn. every other night for ten days. On stopping the administration of veronal, the patient was able to sleep well. He felt much better, and was able to take more interest in his surroundings. He soon put on weight.

Case II.—J. B., æt. thirty-nine. This patient had been under treatment for very severe sciatica. On his recovery he became very melancholic and was afraid to venture out alone. He now began to complain of sleeplessness and was afraid that he would not live long. He had great stiffness in his knees, and this he imagined was the result of heart disease, which would most certainly necessitate a serious operation. He was given 5 grn. of veronal. This, however, had little or no effect. Next night he was given 10 grn., and he slept well. Doses of  $7\frac{1}{2}$  grn. were then given every other night. In a

fortnight patient slept naturally, and after this went to the country. When last seen he was perfectly well.

Case III.—M. C., æt. thirty-nine. Alcoholic insomnia. Patient had been drinking heavily for some days. She was very nervous and wished for something to make her sleep. Ten grains of veronal had no practical effect. Accordingly, on the following night she was given 15 grn. She slept well. As this was the first case in which we had ventured to give so large a dose, the heart was carefully examined both before and after administration. The result was that whereas before sleep there was marked irregularity, after a good night's rest had been obtained the pulse-tracing was more regular, both as regards the height of the upstroke and duration of the waves.

Case IV.—S. D., æt. fifty-two. Cancer of the stomach. This patient suffered greatly from pain, which kept her awake at night. Veronal was given in 5-grn. doses with good effect. One fact was noted, namely, that whereas morphine often aggravated the nausea and sickness, veronal never had this untoward effect.

Case V.—M. M., æt. 27. Severe neuralgia in the facial and occipital regions. Sleeplessness was pronounced. In this case veronal, given at first in 5-grn. and later in 10-grn. doses, produced no marked result, and as the pain continued to be severe we deemed it best to treat it at once without experimenting further with hypnotics. Probably larger doses would have given us a better result, but we had the patient's well-being to consider in the first place.

Case VI.—R. D., æt. 32. Insomnia, the result of cellulitis of the forearm and hand. After free incisions had been made the pain continued to be extremely severe. A 10-grn. dose of veronal gave a sleep of five hours in this case, thus contrasting favorably with the case of neuralgia recorded above.

Case VII.—J. D., æt. 75. Senile pruritus of an intense character. This patient no sooner got into bed than the pruritus commenced. She could not sleep, her agony was so extreme. She was given 5-grn. doses of veronal. These were continued for a week and then taken on alternate nights for a fortnight longer. The patient feels and looks much better, and is now able to get a fair night's rest.

Case VIII.—F. P., æt. twenty-six. Pneumonia of right lung. In this case the temperature rose on the third day to 105° F. The patient had not slept for three nights. Ten grains of veronal were given at 9 p.m., and patient slept from 10.30 p.m. till 4 a.m. He then showed signs of waking, and was fed with beef-essence. Afterward he slept till 6.30 a.m. In this case no bad effects were produced, although pneumonia is a disease in which more than ordinary care has to



be taken lest the cardiac and respiratory centers become unduly depressed.

These notes are necessarily somewhat brief, but they will perhaps serve to indicate the wide range of conditions productive of insomnia in which veronal may be successfully employed. Particular attention must be directed to the facts that no bad after-effects were observed in any case, and that only in one (a severe case of neuralgia) did veronal fail to produce the desired result. It was absolutely impossible for us to give veronal a trial in cases of mental disease, but Würth<sup>1</sup> has quite recently recorded his experiences with this agent, in cases of maniacal excitement. His results are stated to have been wonderfully encouraging. Luther<sup>2</sup> has also written a paper on the subject in which he claims to have obtained good results from the use of veronal in a variety of mental diseases. It was employed in 65 cases altogether, most of these being chronic. This number was made up as follows: Acute dementia, 2; subacute dementia, 3; juvenile forms of insanity, 6; chronic dementia, 20; insanity with rigidity of muscles, 8; periodic mania, 6; senile melancholia, 2; epilepsy, 10; paralysis, 2; imbecility, 3; idiocy, 2; total, 65.

In these cases veronal was given at night, and then again during the day in order to overcome excitability. Luther noted carefully its effect and the duration of the same. He specially emphasizes the fact that veronal has not the strong disagreeable taste of such hypnotics as chloral hydrate, paraldehyde, and dormiol. It surpasses the two latter in the duration of its action. Its effect is not cumulative as is that of sulfonal and trional. He concludes by stating that it produces a natural and pleasant sleep, and that it is a very useful remedy in the treatment of the excitability associated with mental disease.

Veronal certainly bids fair to replace some of the older hypnotics, many of which are distinctly unpleasant when taken in powder form. Besides many of the older and better known remedies are apt to prove dangerous on account of their cumulative effects. Some of them are extremely liable to produce marked alterations on the pulse rate and rhythm, while others

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<sup>1</sup> Psychiatrisch-Neurolog. Woch., 1903, No. 9.

<sup>2</sup> Psychiatrisch-Neurol. Woch., 1903, No. 28.

again cause urinary changes. Veronal, so far as we have found, seems to produce none of these ill effects. It is certainly, in our opinion, deserving of further trial among the profession in this country, as up to the present it has only been employed at all extensively in the practice of Continental hospital physicians.

## Society Proceedings

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### BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

May 19, 1904.

Dr. G. Adler Blumer in the Chair.

*Persistent Hemianesthesia.*—Dr. Knapp exhibited a patient, fifty-seven years of age, with marked arteriosclerosis and high blood tension over 200 mm. Three years ago he had a “shock” without loss of consciousness or marked paralysis, but with marked loss of sensation on the left side. At that time there was pronounced spasm of the left side, the arm being drawn up as if in contracture, the leg being rotated inward, and the patient walking in a peculiar propulsive manner. The grasp of the left hand is weaker than normal, and the left knee-jerk is greater than the right, but otherwise there is no sign of hemiplegia. There is a distinct diminution of sensibility in all forms on the left half of the body to touch, pain, heat, cold, localization, position, motion and bony sensibility. This diminution is bounded sharply by the median line and involves the forehead, face and left half of the nose. There is decided ataxia of the left hand and a slight tendency to athetoid movements. When a knife is put in his left hand he can hold it firmly while he keeps his attention on it, but he drops it when he thinks of something else.

Dejerine maintains that in anesthesia from organic brain disease the anesthesia is most marked at the distal extremity of the limb and shades off gradually as we go up the limb. That is usually true, but it is not the case with this patient. The anesthesia is as marked in the upper arm or the thigh as in the hand or foot. It is much greater in the limbs than in the trunk, but the line of division between the slight hypesthesia and the marked hypesthesia is quite sharply defined corresponding about to the line of the arm-hole of the waistcoat and the line of the groin.

Although nearly every case of ordinary hemiplegia presents some temporary disturbance of sensibility if we examine carefully, it is rare to find such persistent anesthesia lasting three years.

This is due to the situation of the original hemorrhage or vascular lesion. The hemorrhage must have come from one of the groups of vessels near the sensory cross-way, and, since the optic radiations are spared and there has been no hemianopsia, it must have been the lenticulo-optic artery near the island of Reil, rather than the postero-external optic artery near the thalamus.

Another striking feature of the case is the benefit derived from treatment in spite of the long duration of the trouble. When he was first seen, two or three weeks ago, he had no control of his hand and could hardly close it. By persistent gymnastics, Frenkel's method, he can now close his hand readily.

Dr. E. W. Taylor said that the case which Dr. Knapp had shown seemed to be undoubtedly of organic character, as Dr. Knapp had suggested. It recalled an interesting case of hemianesthesia which Dr. Taylor saw sometime ago with relation to the differential diagnosis between an organic and a so-called functional cause for the disturbance. The onset of the paralysis of sensation, and partially also of motion, had been fairly quick, and left the patient with a very marked disorder of sensibility of one side,



in which the arm was particularly affected. Examination showed, in addition to the analgesia, a complete loss of the sense of position and the muscle sense in general. With the eyes closed the patient had absolutely no idea of the position of the arm. This factor was particularly influential in determining the organic character of the disturbance, and in general it may be said that the coexistence of the marked loss of muscle sense in cases of hemianesthesia is strongly indicative of an underlying organic lesion.

A second case of sensory hemianesthesia which was at first extremely well marked, but which later improved to a considerable degree, was referred to by Dr. Taylor. The lesions, post-mortem, did not satisfactorily explain the sensory disorders observed during life. The brain in general showed marked arteriosclerotic changes, with numerous small cysts of softening, and no doubt it was one of these in the dorsal portion of the internal capsule which led to the hemianesthesia. So far as the case was studied, however, the exact source of the sensory disturbance was not to be determined.

Dr. Walton thought the present symptoms in Dr. Knapp's case were hysteric, though superimposed, perhaps, upon an organic lesion. This opinion was based on the extension of the anesthesia to the median line, its marked persistence, the recovery within three weeks of a stiffness of the hand, which had persisted for several years, and the absence of hemianopsia, together with the presence, as it seemed to him, of a suggestion of limitation of visual field in the left eye, and of a gait not conforming to any recognized type of hemiplegia.

Dr. Courtney said he did not understand why Dr. Walton considered it necessary for the hemianesthesia in Dr. Knapp's case to be associated with hemianopsia in order to establish its organic nature. Dr. Courtney was inclined to believe that the lesion was outside of the capsule and involved the sensory fibers merely by contiguity, and was not in either of the regions indicated on the diagram. He did not agree with Dr. Taylor that the presence of incoördination in a case of this sort would be definitive of organic disease. In the few genuine cases of hysteria we see in this country the hemianesthesia may be accompanied by marked incoördination.

Dr. Walton had called attention to the somewhat theatrical manner in which the patient dropped the knife from his hand at a given time. Dr. Courtney appreciated the force of the insinuation and admitted that the act did smack of unconscious suggestibility, but he failed even then to see how a diagnosis of hysteria was permissible in this particular case, the other facts being as they were.

Dr. E. W. Taylor said the cause of the disturbance in Dr. Knapp's case had been spoken of several times as presumably due to a hemorrhage. It is more probable that such disorders are usually occasioned by thrombosis leading to areas of softening. The greater frequency of softening in persons past middle life is apparently not in general sufficiently recognized.

Dr. Knapp remarked that Dr. Walton and Dr. Taylor had both spoken of hemiplegia, but this patient had never been paralyzed. The anesthesia came on suddenly, with symptoms of a "shock" in a patient with sclerosed arteries, and the case corresponded to others of lesion in the posterior part of the external capsule. There had been no contraction of the visual field, and the hemiataxia and hemispasm were not suggestive of hysteria. The idea of hysteria had not been entertained by anyone who had seen the patient at the hospital. Dr. Walton had carefully pointed out the fact that the hemorrhage could not have come from the lenticulo-striate or postero-external optic artery, but he failed to show that a hemorrhage from the lenticulo-optic artery would give rise to exactly this condition.

*A Case of Recurrent Post-infectious Psychosis.*—Dr. Walton reported this case. A young lady of fifteen years, a patient in the Neurological

Department of the Massachusetts General Hospital, during the past four years has had four attacks of listlessness, somnolence and stupidity, lasting from days to weeks or months. Each attack has followed an infection diagnosticated as tonsillitis. The first attack lasted from June to October, and followed a severe attack of so-called tonsillitis, during which there was a temperature of 103.5 degrees F., with delirium, great malaise, loss of flesh, pain in swallowing, thickness of speech and headache. No culture was taken.

Between the attacks of mental failure the patient is active and normal in every way, physically and mentally, and attends school, where she makes good progress. The catamenia appeared at fourteen, and have been normal and regular. She had measles in infancy not followed by mental or nervous symptoms. During the attacks she takes no interest in anything except singing. She has to be humored and waited on, will not arrange her hair or dress herself, but sleeps much of the time, perhaps twenty hours out of the twenty-four. There is no headache, but she eats little and loses flesh; is not uncleanly. The present attack appeared about two weeks after recovery from the throat symptoms.

Physical examination shows a very well developed girl with rather high narrow palate and adenoid hypertrophy, a mouth breather. There are no further marked signs of deviation. The pupils are normal, the knee-jerks present but weak, the Achilles reflex normal. There is no loss of sensation or other physical sign. Patient yawns constantly, takes no interest, leans the head upon her mother's shoulder or upon the desk; walks in a slovenly and listless manner; answers simple questions in an indifferent and monosyllabic way, often not completing the answer. Shows slight tendency to negativism under examination, but does not actively object or refuse to do what is told. When asked if she knows where she is answers that it is the hospital. The voice is expressionless. The whole appearance is that of sluggish indifference. She does not make the impression of being melancholy, and there is no history of excitement at any time; no delusions or hallucinations are made out. The general appearance of the patient is that of the hebephrenic form of dementia præcox. There is no suggestion of catatonic or stereotyped movements, but marked impairment of voluntary attention and interest.

A report from the throat department shows normal tonsils but hypertrophied adenoids, and indicates a probability that the local disease affected the latter tissues.

Dr. McCollom finds that symptoms of this nature appear in a large proportion of cases recovering from measles, and he is preparing a report of such cases. Acute disease has been credited with the causation of dementia præcox, and the question naturally presents itself whether the comparatively favorable prognosis of this disease found in the text-books may not be in part due to the inclusion under that diagnosis of cases of this variety of post-infectious psychosis.

Dr. Knapp remarked that slight forms of mental disturbance, usually of a confusional type corresponding to Meynert's amentia, are not uncommon after acute infections, notably the grip; and slight indications of such disturbances would probably be quite frequently found on careful study.

He had seen such conditions not infrequently after the severer infections, but he had not noted recurrent types after a slight infection. He had recently heard of active delirium with high temperature (104 degrees) in three cases of chicken-pox in one family.

Dr. McDonald questioned the necessity of seriously considering dementia præcox in the problem of diagnosis. The principal mental symptoms outlined by Dr. Walton were in no way characteristic of that disease. They could as well be a part of manic-depressive insanity or of many other



psychoses as well as of dementia præcox. Further data would seem to be necessary for the establishment of any diagnosis.

*A Case of Sacral Spina Bifida, with Reference to the Segmental Disturbance of Sacral Nerves.*—This case was reported by Dr. E. W. Taylor. The patient was a man about thirty years of age, who had had from birth a small spina bifida over the sacrum, resulting in very slight disturbance of motility in the feet, loss of sphincter control and disorders of sensation occupying the saddle-back area to a point about six inches from the knees, the genitals and an area taking in the feet, and a strip extending over the outer portion of the leg to a point within a few inches of the knee. This area involved approximately one-half of the leg. The borders of this area were not sharply defined. The point of special interest regarding the segmental disturbance was the fact that an area at the back of the leg, including the popliteal space and extending a distance both above and below the knee, was entirely free from anesthesia. This is apparently always a doubtful area, although usually regarded as supplied from the second sacral segment. The fact that it was spared in this case, although the first sacral segment and the lower sacral segments were definitely mapped out by anesthesia, is of interest as possibly throwing some light on this doubtful area. Although the patient suffered from complete anesthesia of the foot and also had a considerable degree of club-foot, he was able to walk and had no marked Romberg symptom. It is also worthy of note that his sexual power was intact, in spite of genital anesthesia.

*Types of Alcoholic Insanity, with Analysis of Cases Prepared from Records of the Danvers Insane Hospital.*—Dr. H. W. Mitchell read this paper. During a period of five years he found that after excluding the dipsomaniacs, showing no psychical symptoms, 148 patients, or 13.1 per cent. of admissions among men, were cases of alcoholic insanity. The cases were grouped under subdivisions of:—

1. Delirium Tremens.
2. Alcoholic Hallucinoses.
  - (a) Acute.
  - (b) Sub-acute.
3. Alcoholic Delusional Insanity.
4. Alcoholic Dementia.

There were two cases of Korsakow's psychosis, of alcoholic origin. Clinical abstracts of cases showing the various types were read, and the results of hospital observation and subsequent history of individual cases were given. He found that among the cases of delirium tremens nearly all recovered without development of the graver forms of alcoholic psychoses. The prognosis in cases of acute alcoholic hallucinosis was good for the attack, but relapses, due to renewal of drinking habits, were common. These cases were characterized by active auditory and visual hallucinations, the former predominating, with little disturbance of consciousness and transitory delusion formation based upon the hallucinosis.

In the cases of subacute hallucinosis there were usually auditory, visual, olfactory and tactile hallucinations, with more prolonged delusion formation, but still largely dependent upon hallucinations. Periodic relapses were frequently seen in these cases while confined in the hospital, the patients presenting practically normal reaction in the intervals. Relapses were common after leaving the hospital, and there was frequently a permanent mental deterioration.

The term, Alcoholic Delusional Insanity, was used for cases showing paranoid delusion formation, sometimes elaborated from hallucinations, but in many cases not associated with any hallucinatory disturbance. Ideas of marital infidelity, poisoning and persecution were most common. Tendency to chronicity was noted in this group, a very small proportion of the cases discharged were found to be able to resume their former place in society.



Under the term, *Alcoholic Dementia*, were grouped the cases showing dementia as the primary symptom, and this occurred as the result of many years, more or less constant use of distilled liquors. Permanent mental deterioration was seen in all the cases studied.

Among the various groups were seen many cases resembling paresis, the diagnosis being possible only after prolonged observation.

Ten per cent. of all the alcoholic cases had one or more epileptiform convulsions. Suicidal attempts and acts of violence were common, and were seen in reaction to hallucinations. Statistical reports of the psychical and neurological symptoms were given.

Heredity of insanity or intemperance was common and influenced the prognosis unfavorably. The persistence of olfactory and tactile hallucinations indicated a prolonged course in alcoholic hallucinosis. Somatic and grandiose delusions with changed personality were unfavorable symptoms in delusional cases. Periodical drinking was more common in delirium tremens and hallucinosis, and daily drinking in delusional insanity and dementia. The free use of distilled liquors was noted in nearly all cases. Hallucinations often served as the basis for development and elaboration of paranoid delusion system.

Dr. Woodbury said that alcoholic cases if they became insane were discharged from the Foxboro Hospital and committed to an insane asylum. They were very few in number, having been only two out of 280 admissions last year.

We rarely see the types of delirium characterized by visions of red devils, rats, etc., and although delusions are not uncommon, they seldom reach a dangerous point. Probably ninety per cent. of the cases recover a normal condition without mental derangement. The other ten per cent. have chiefly delusions of persecution, and in time recover, except the few sent to insane hospitals.

Dr. Charles W. Page expressed his appreciation of the vast amount, as well as the discriminating character of the work which Dr. Mitchell had put in his paper. He had critically reviewed five years' work with alcoholics in the Danvers Hospital, classifying cases along practical lines, and differentiating the various states with especial clearness.

We all aim to keep accurate records of our cases, and nothing so perfects one's system and improves the standard as occasional reviews of the work that has been done. In this way it becomes clear what features are especially important, and what new lines of inquiry may be helpful. Besides, in no other way is it safe to draw general conclusions as to prognosis, treatment, etc.

He was sure they would in the future be able to do better work at Danvers as the result of Dr. Mitchell's analysis of cases and his conclusions, as would others elsewhere, when his work became accessible to them through its publication.

Dr. Stedman said that Dr. Mitchell's careful paper, which was the first study of the subject ever read before the Society, was a most welcome one. Alienists had made altogether too little investigation in this country of alcoholism and its attendant mental phenomena. This was especially to be regretted in Massachusetts, where there had always been much public interest among the thinking part of the community as to the best means of preventing it and of providing for its victims.

The reader had not specifically alluded to that interesting class of cases often heard of and read about, but in Dr. Stedman's opinion infrequent. They represent true, essential dipsomania. There may be entire freedom from any desire or even liking for alcoholic drink until a definite preliminary stage of depression in which the victim struggles against his overpowering impulse, even to the extent, it is reported, of putting nauseous substances (feces in one case) in his liquor in order to prevent himself

from tasting it, or committing some petty theft so as to be arrested, and thus prevented from obtaining liquor. When seized by the impulse, a business man, otherwise prudent and scrupulous, will suddenly leave his office, or a father his family while at church, for the nearest resorts, where he remains until his craving is appeased and the paroxysm is over, and returns home overwhelmed with remorse. This impulsive drink-furor is a morbid, irresistible craving independent of the will, and an episodic syndrome of hereditary mental instability or impairment. It is thought to be distinct from alcoholism in which there is no real impulse but simply a vicious habit. It is allied to those forms of hereditary neuroses and mental disorder that are characterized as impulses, "manias," "phobias," etc., and especially in periodicity. He thought, however, that such distinct, clear-cut cases of the pure form were much rarer than they are generally supposed to be. As to the diagnosis of alcoholic dementia in doubtful cases, he thought it could sometimes be only distinguished from paralytic dementia of the demented type by the greater age of the alcoholics. He asked in how many of Dr. Mitchell's cases there was a family history of intemperance exclusively, and whether they showed any features distinguishing them from those in which there had been insanity only in the family.

Dr. Albert M. Barrett, in reply to the question of Dr. Stedman, as to the relation of dipsomania to the alcoholic psychoses, said he should like to call attention to the monograph, "Die Dipsomanie," by Gaupp, of Heidelberg. This is a most careful and excellent clinical study, which it seems has not been generally noticed. Gaupp undertook to establish dipsomania as a form of psychical epilepsy. Under dipsomania he places those cases of periodic drinking, in which, after a prodromal emotional depression, there occurs an irresistible impulse to alcoholic excesses. After a varying period the attack ends, and as the intoxication wears off the former more or less normal mental state returns.

From the studies of Kraepelin and Ashaffenburg, it has been shown that a periodical depression is a frequent and important symptom of epilepsy.

Gaupp described and analyzed three groups of cases. The first group were cases of pure dipsomania, in which the period of drinking came on after an emotional depression. The second group included a series of cases in which there were similar periods of depression, without inclinations for drinking, but in which there were present typical epileptic symptoms, such as convulsions or various forms of psychical epilepsy.

The third group were cases in which dipsomaniac attacks were combined with epileptic symptoms, such as dreamy states of consciousness, convulsions, vertigo, etc.

From the analyses of these groups he concluded that the depression of dipsomania was of an epileptic nature, and that dipsomania was not an independent disease, but one of the many forms of epilepsy.

As many cases of dipsomania are often associated with criminal acts the forensic importance of such conclusions would be apparent.

Dr. McDonald was glad to see a clear distinction drawn between an acute alcoholic hallucinosis of the simple variety and of that accompanying delirium tremens. In practice we get one class of cases in which there are hallucinations, more generally auditory and of cutaneous sensibility than visual, and without the characteristic signs of delirium tremens. With the simple hallucinosis there is less disturbance of consciousness and of comprehension with none of the dreamy occupation delirium of delirium tremens. While it is possible that the two conditions are but degrees of one process, they are conveniently separated in clinical descriptions, since in practice they present different pictures and need different treatment. Many authors confuse the two varieties.

He was somewhat surprised that Dr. Mitchell, in the large number of



cases described, had not met with more cases of the so-called alcoholic pseudo-paresis, a group of cases not resembling paresis so much because of mental defect, as is in the group of cases which included among the alcoholic dementias, but also having the physical characteristics of paresis. In practice we see a large number of such cases in which it is difficult to distinguish between paresis and alcoholism. The withdrawal of the alcohol in many cases settles the diagnosis, the physical symptoms of paresis in the alcoholic then disappearing. Lumbar puncture has been used in the endeavor to distinguish between these two forms. It is probably of some help, though many authors claim that there is an increase of cellular elements in the cerebro-spinal fluids of many chronic alcoholics as well as in the paretics.

Dr. Walton said the Society was greatly indebted to Dr. Mitchell for his very clear presentation of this important subject. His description of alcoholic dementia was of special interest, and it was consoling to realize that in doubtful cases time only can establish the diagnosis. In a case Dr. Walton had recently examined the diagnosis was in doubt eight months ago, but during that time, while the loss of memory and other forms of mental deterioration had become extreme, no characteristic sign of general paralysis had appeared, a fact which seemed now to establish the diagnosis. The pupils were alike and reacted to light. It was new to him that unequal and sluggish pupils were characteristic of alcoholic dementia.

Dr. Knapp said he had been struck by the large percentage of the delusional cases in the statistics presented by Dr. Mitchell. In the wards and out-patient service at the City Hospital the cases of delirium tremens, hallucinosis and demented types are much more common, and the paranoid forms are quite rare. This is perhaps due to the fact that many of the cases with active delusions go directly to an insane hospital, while the confused and demented forms are often thought to be, or are afflicted, with some other disease, such as neuritis or pneumonia. Dr. McDonald spoke of the distinction between the different types. Dr. Mitchell had skilfully selected typical cases from each type, but transitional types are very common. Indeed, some writers make no sharp distinction between delirium tremens and the acute hallucinosis or confusional type.

The cases of alcoholic insanity so ably presented confirm the views which Dr. Knapp advanced not wholly acceptably some years ago. At that time he agreed that the existence of acute hallucinatory confusion, acute delusional states, delirium tremens and pseudo-paralytic dementia, all resulting from alcoholic poison, indicated that the symptoms of other brain diseases were often due to the location and extent of the morbid process, and that a classification by the symptoms and their cause might be fallacious.

Dr. Mitchell said that the class of cases referred to by Dr. Woodbury had not been considered in this study. The cases resembling paresis did occur in other groups than dementia, but happened to be more common in the latter among the cases studied. Stiff pupils were not seen in any of the cases of pseudo-paresis, but diminished light reactions and unequal pupils were seen in these cases, most of whom had luetic history. The prolonged observation enabled him to exclude paresis. The large number of cases in the delusional group, twenty-two per cent., could not be considered to establish any ratio, because of the small number of cases. It had been extremely difficult to secure reliable histories concerning the history of parental intemperance, because of the large foreign element. It was undoubtedly common, but exact figures could not be obtained. The milder forms of alcoholic psychoses occurred in early life, and were frequently associated with habits of periodical drinking; the average age in cases of dementia was nearly twenty years greater than in delirium tremens, and there was always a history of prolonged drinking habits and the use of large quantities of distilled liquors.



## NEW YORK NEUROLOGICAL SOCIETY.

May 3, 1904.

The President, Dr. Pearce Bailey, in the Chair.

*A Case of Hemi-hypertrophy.*—Dr. Graeme M. Hammond presented a child, six months old, who was sent to him by Dr. Savage, of New York. The labor was normal, and there was nothing unusual about the child except that, soon after birth, about the end of the first month, it was observed that the left side of the infant was larger than the right, and this was particularly noted in the head, arm, trunk and leg. The bones of the left arm and leg were larger than those on the right. The measurements taken one month ago showed the following: Right forearm 5.3-14 inches, the left half an inch larger; right arm  $5\frac{3}{8}$  inches, the left half an inch larger; the calf on the right side was 6.1-3 inches, the left 6.7-10; above the right knee the circumference was  $7\frac{1}{2}$  inches, the left side 8 inches; the right thigh 9 inches, the left  $10\frac{1}{2}$ ; the right leg  $10\frac{1}{4}$  inches, the left 11 inches. There had been no other such cases in the family. Both sides were strong, and the child was bright and vigorous. Nothing appeared to be wrong with the child except this difference in size on either side of the body.

Dr. Hammond said that Demmi had described two forms, (1) in which there was an increase in the cellular tissues beneath the skin, and (2) cases in which there was an hypertrophy which extended to the bones and muscles. One of these, of course, was not a true hypertrophy at all.

Dr. Hammond said the case was one of true hemi-hypertrophy and very well marked, for there was not only an increase in the cellular tissues but also an hypertrophy of the bones and muscles. Sections of muscles had not been taken for microscopical examination. The child was very bright, and appeared healthy in every way. He said he would have a photograph of the child taken in about one month, and keep it for future observations, taking other photographs every six months afterwards.

Dr. L. Pierce Clark said he had not seen any similar case, and he thought such cases were very rare. He had had occasion to go over the literature on this question of hypertrophy, different measurements on the two sides, and knew how rare such cases were. He would like to have an X-ray picture taken in order that comparisons might be made of the bones of the two sides.

Dr. Pearce Bailey said that two or three years ago, in the Babies' Hospital, there was a case of hypertrophy of the muscles of the leg and of the bones, which was along the course of distribution of the anterior tibial nerve; the hypertrophy was very pronounced and followed this distribution very closely, and it seemed to be explained on the hypothesis of segmental growth. The case presented was not so easy to explain on that hypothesis. It was due to some developmental error of congenital origin.

*X-ray Picture of Hemi-atrophy of the Face.*—Dr. L. Pierce Clark showed his X-ray picture, which was unique from a skiagraphic standpoint rather than from a picture aspect. The hemi-atrophy showed equally well in the case as in the photograph. The means of taking it was experimental, inasmuch as the face was placed on the X-ray plate and the head bent forward in such a manner as to produce a more accurate picture of the bones of the face, rather than of the bones of the cranium itself. In the ordinary way, taking the picture of the upper part of the head, would give a dense picture and spoil any attempts at comparison of the two sides of the face. He had looked over quite a large number of works of skiagraphy, but could find nothing to aid in getting less dense pictures. The picture pre-

sented was the work of Dr. Holding, and he seemed to have worked it out with fair results.

*Specimen of Tubercular Basilar Meningitis Occurring in a Bear.*—Dr. Harlow Brooks presented this rather unique specimen, the brain of a grizzly bear. The animal was apparently normal and healthy in every respect, and had been taken from the wild, which lessened the possibility of congenital or breeding defects. He weighed 1,200 pounds. He developed what was supposed to be a tumor of the cerebellum, but this was not verified by lumbar puncture for obvious reasons. For six weeks there were typical symptoms of pressure upon the pons and cerebellum. It required but one-eighth of a pound of chloroform to kill the animal. The gross specimen showed a basilar meningitis along the Sylvian arteries and along the cord, and seemed to be a typical tubercular meningitis. It illustrated the fact that we could have a tubercular infection in the bear family. The disease was probably contracted in the animal quarters. There were no tubercular lymph nodes or evidences of tuberculosis elsewhere.

# Periscope

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## JOURNAL OF MENTAL SCIENCE

(Vol. 49, 1903, No. 3, July.)

1. Changes in Nervous System in a Case of Porencephaly. J. O. W. BARRATT.
2. The Significance of Central Chromatolysis with Displacement of Nucleus in the Cells of the Central Nervous System of Man. J. TURNER.
3. On the Action of the Rolandic Cortex in Relation to Jacksonian Epilepsy and Volition. A. B. KINGFORD.
4. Further Clinical Observations in Cases of Acute Mania, Particularly Adolescent Mania. L. C. BRUCE.
5. Some Remarks on Suicides in Public Asylums. H. A. BENHAM.
6. Notes on Hallucinations. C. NORMAN.
7. Superannuation Allowances. Discussion.
8. Frequency of Occurrence of Granular Ependyma in General Paralysis. J. V. BLACHFORD.
9. Clinical Notes and Cases.

1. *Porencephaly*.—A detached study of the minute anatomy of the nervous system of a patient of healthy birth, who, at the age of eleven to twelve months, developed fits without ascertainable etiology. Idiocy followed the continuance of the attacks. Patient died at age of thirty-two a confirmed epileptic idiot. The anatomical changes noted were defects in the pallium on left side involving the operculum, island of Reil and superior temporal convolutions. The left hemisphere was small and contracted about defective area. The left optic thalamus was atrophied and also the left optic radiation. The original should be consulted for a full anatomical description.

2. *Chromatolysis*.—Turner in a short note shows that the time has not yet come to deduce anything definite from the chromatolytic changes in the cells. Displacement of the nucleus has no pathological significance.

3. *Rolandic Cortex and Epilepsy*.—How do chronic irritative lesions produce periodic discharges? The author turns to Mercier, Gowers and others to explain. His own suggestion is that "whereas the discharge, realized in consciousness as the sensation, actually results in the liberation of motor discharges from the subcortical centers, through other than pyramidal pathways, these motor discharges are overtaken and neutralized, so to say, before their exit from the spinal cord by inhibitory currents from the Rolandic cortex through the short-cut afforded by the pyramidal tracts.

4. *Adolescent Mania*.—Some blood studies resulting in the conclusion that in acute continuous mania there is a leucocytosis which may be termed a protective leucocytosis.

5. *Suicide in Asylums*.—A study of Blue Book Statistics, dealing with interesting group summaries and some strange methods of suicide.

6. *Hallucinations*.—A review of theories. Physical theory, or the Esquirol theory first being discussed, then the sensory theory of Luys and Ritti, the psycho-sensory hypothesis of Baillarger; Tamburini's idea that hallucinations are irritations of the perceptive or psycho-sensory centers in the cortex and Tanzi's enlargement of the idea. An excellent résumé of the subject, but very restricted in its scope.



7. *Superannuation Allowances*.—A practical discussion of this phase of hospital administration.

8. *Granular Ependyma in Paresis*.—The author seeks to present (1) the proportion in which the condition is found; (2) in what class of cases does it occur, and (3) whether age or antecedent disease influences its production. 68.8 per cent. had it; in cases with coarse brain lesion it was more common, and it occurs more frequently in men than in women paretics; it occurs about middle life and is usually associated with coarse organic cerebral lesion.

(Vol. 49, 1903, No. 4, October.)

1. Presidential Address. ERNEST W. WHITE.
2. Revision of Tuberculosis Statistics.
3. Clinical and Experimental Observations on Katatonia. L. C. BRUCE.
4. Female Nursing of Male Patients in Asylums. A. R. TURNBULL.
5. A Case of Double Consciousness. A. WILSON.
6. The Teaching of Psychology in Universities in the United States. C. S. MYERS.
7. That Epilepsy Cannot Be Caused by Toxemic Conditions. W. H. HALL.
8. Clinical Notes and Cases.

1. *Address*.—A general paper not adapted to summarization.

2. *Tuberculosis among Insane*.—A revision of the tuberculosis statistics of Erie France. Purely statistical.

3. *Katatonia*.—A series of observations on twelve patients with Kahlbaum's katatonia with some observations on rabbits. They conclude that katatonia is an acute toxic disease. There is a prodromal period of gradual onset, aural hallucinations, mental confusion, paroxysms of excitement, impulsive actions, spasms of the muscles, hyperleucocytosis, secondary stage with stupor and rigidity supervenes. They find a specific agglutinin to a short streptococcus isolated from one patient (very inconclusive findings). They believe they can induce in rabbits a disease by the organisms and they were unable to immunize the patients.

4. *Female Nurses*.—A discussion on this administrative question favoring the extension of the system, but not making it absolute.

5. *Double Consciousness*.—An irregular type of mental kaleidoscopic ideas classed as a double personality case. Interesting, but not conclusive.

6. *Psychology in United States*.—Seven weeks' observations in seven American Universities afford the basis for this paper. It is an appreciative and kindly view of the work done in our universities. The many study psychology here, even if only a little of it, as compared with the few of England. His descriptions are accurate and friendly.

7. *Epilepsy not Toxemic*.—A short essay on the subject presenting no special features. JELLIFFE.

#### NOUVELLE ICONOGRAPHIE DE LA SALPETRIERE

(Vol. 17, 1904, May, June.)

1. Infantile Type of Gigantism. BRISSAUD, MEIGE.
2. Abortive Myxedema, Tardy Development, Diabetes. APERT.
3. Contribution to the Study of Hemiedemas in Hemiplegics. LOEPER, COURZON.
4. Contribution to the Study of Trophedema. SAINTON, VOISON.
5. A Case of Katatonic Dementia Præcox with Pseudoedema Complicated with Purpura. TREPSAT.
6. A New Case of Achrondroplasia. DIDE, LEBORGNE.
7. A Case of Generalized Neurofibromatosis. RUDLER.
8. Alterations in the Spinal Ganglia in Tabes. THOMAS, HAUSER.
9. Traumatic Hematomyelia. LAIGNEL-LEVASTINE.
10. The Dancing Procession of Eshternach. MEIGE.

1. *Infantile Gigantism*.—The coexistence of infantilism and dwarfism has been observed for a long time. The majority of myxedematous idiots are at the same time infants and dwarfs. In almost all cases, infantilism is accompanied by smallness of stature. There exists a type of infantilism with gigantism; several such cases have been reported. The case here recounted is that of a man aged thirty. In size he would be considered to belong to the class of giants, but his mental development is that of a boy ten years old. The family history of this case is of interest, his mother had fourteen children of whom only two are living. His sister is obese. Two ancestors and a maternal aunt were of large stature. The paternal grandfather died at the age of 115 years. To find in one family a combination of gigantism, infantilism, obesity, abnormal longevity, an excessive fecundity and a large mortality, is very striking.

2. *Abortive Myxedema*.—The relations which exist between the anatomical condition of the thyroid body on the one hand and the growth of the organism and its general nutrition on the other have been well established. Apert has called attention to the fact that dysthyroidea can manifest itself not only as pure infantilism, but also as feminism and cryptorchidia with or without obesity. This paper is based upon the report of a case of hypothyroidea with obesity and cryptorchidia who at sixty-six years measured only 1m. 45 in height. In addition there was also glycosuria. The presence of glycosuria is of especial interest as it was formerly believed that sugar and myxedema were never present in the same patient.

3. *Hemiedema in Hemiplegia*.—Vasomotor disturbances are not rare in hemiplegics, but the appearance of an edema limited to the hemiplegic side is uncommon and not easy to explain. There is a tendency to account for this phenomenon on the ground of a special localization of the lesion. In addition to this class of cases there is another in which the cause of the edema is to be found in the renal or cardiac complication and the hemiplegia is a factor only in the localization of the process. Three cases are described from Dieulafoy's clinic. The fact that the edema is not necessarily located on the paralyzed side, seems to prove that there must be another factor at work than that of the position of the leg. The alteration in the vasomotor and the trophic fibers regulate the distribution of an edema which it did not directly cause and which is of visceral origin. The edema of a hemiplegic extremity is frequently of mixed origin. The hemiplegia itself incapable of causing edema in most of the cases only renders apparent a disturbance in the process of filtration and exchange in the interstitial spaces.

4. *Trophiedema*.—Trophiedema has now become a well recognized fact since Meige first gave a clear clinical description of it. It is a white edema occupying one or more segments of one or more extremities of the body persisting during and without any untoward influence upon life. The edema is altogether painless. The case here reported conforms to this description. The treatment by thyroid proved as ineffectual in this one as in others of the same class.

5. *Pseudoedema in Katatonia*.—Pseudoedema in katatonic forms of dementia præcox is more frequent than was at first thought. M. Dide has collected 45 cases and the author 65. The case reported in this paper is that of a man 27 years old with a neuropathic heredity. Semi-stupor, catatonic attitudes, stereotypia, verbigeration, negativismus, impulses. A purpura complicated the edema. It was situated on the lower extremities and the feet.

6. *Achondroplasia*.—A description of a case with photograph. Measurements are given. The man is mentally deficient as is the rule in this class of cases.

7. *Neurofibromatosis*.—A case of a man twenty-three years old who shows on his body multiple tumors with an absolutely irregular distribution. They vary in size. The patient shows in a very marked way two

of the classic symptoms of Recklinghausen's disease, the cutaneous tumors and the double pigmentation of the skin.

8. *Alteration in the Spinal Ganglia in Tabes.*—The problem which concerns itself with the origin of the tabetic process is still one of the most debatable questions in neuropathology. Whether it is to be found in the cord, in the roots or in the posterior root ganglion, is still a matter for the future to solve. These two authors in 1902 examined a large number of spinal ganglia from tabetic cases and collected the findings of other workers in the literature, but were unable to come to any definite conclusion in the matter. They did determine a certain number of very slight alterations in the structure of the cells and it is for the purpose of studying these with more careful and finer technique that the present investigation was undertaken. The sections were all embedded in paraffin. Each ganglion was cut longitudinally so that the complete surface of the specimen could be studied in each section. The Nissl stain was not used because, according to the opinion of the authors, it does not produce the finer effects of stain reaction which are needed in ganglion work. The method used was staining en masse in picrocarmin after the previous treatment in osmic acid. By this method the fibers of the posterior roots can be studied and the myelin as well as the nuclear changes are well brought out and also the chromatin of the cell. The osmic acid stains also the fatty degeneration found at times in the cell itself. The ganglia from eight cases of tabes formed the material of the study. In general the most striking thing observed was the diminution in the number of the cells and the atrophy of the cells themselves. There was some change observed in the blood vessels, some hyaline degeneration. In the ganglia which were most affected it can be said that the number of normal cells was always in excess of the abnormal ones. The following conclusions are noted by the authors: (1) There exist in tabes frequent alterations in the structure of the cells in the posterior root ganglia. These lesions consist principally of a slight degree of atrophy and of disintegration which can go as far as the destruction of the cells. (2) In spite of the importance and their frequency it is difficult to appreciate the rôle they play in the pathogenesis of the atrophy of the posterior roots, and of the cord degeneration. They are too frequent, however, and too marked, in certain cases, not to be considered as playing some important rôle in the pathogenesis of tabes and as not taking part in the tabetic process.

9. *Traumatic Hematomyelia.*—Traumatic hematomyelias may be considered in the light of a physiological experiment on account of the rapidity of their onset, the exactness of their localization, and the simplicity of their mechanism. A man twenty years old, fell, fracturing the two processes of the fifth cervical by direct blow upon the spinous processes. At the autopsy it was found that the hematomyelia extended from the second to the sixth cervical segments. An interesting point in this case was the rapid appearance of cellular lesions. Twenty-one hours after the accident the cells not only at the seat of the lesion but also in the segments some centimeters distant showed all degrees of degeneration.

SIDNEY I. SCHWAB (St. Louis).

#### JOURNAL DE NEUROLOGIE

(1904, IX, Nos. 4 and 5.)

##### I. Experimental Rabies from Fixed Virus, and Its Histological Lesions. CHARLES LADAME.

1. *Experimental Rabies from Fixed Virus.*—The author briefly reviews the history of the pathological anatomy of rabies, then gives an account of his own researches, which consisted in injecting a number of rabbits with fixed virus prepared by triturating with sterile water the spinal cord of a rabbit of the five hundred and fifty-eighth passage. His injections were made by the intra-cerebral sub-dural, and nasal methods. Besides the



virus alone (in 28 cases), he also used virus mixed with bile from a rabbit (in one case), the pathological bile alone (in two cases), and normal bile (in two cases). Upon examination of the nervous systems of these animals, he found the usual lesions of membranes, cells and vessels, with cellular deposits in the bulb and elsewhere for which he prefers the name of nodules to that of tubercles. The cell deposit and proliferation found in the ganglia of the cerebro-spinal nerves, he regards as entirely similar to the rabic tubercle or nodule. The cells making up these nodules and infiltrations he finds to be of five sorts, lymphocytes, leucocytes, connective tissue cells, neuroglia cells and endothelium of the cell capsules. The distribution of the various lesions and their intensity varied greatly. Similar changes were found in all the animals, not excepting those injected with normal bile alone. In a cat, in which the vagus nerve had been cut, nodules were found in its ganglion, to no extent differing from those observed in rabies. The cure in certain paralyses, regeneration being favored by the stimulus of lesions found in the nervous system in experimental rabies are the common and habitual lesions of inflammation. 3. The rabic nodule found in the ganglia is a particular manifestation of inflammation due to the special structure of this organ. It is found in other diseases than rabies. 4. Neither the localization nor the intensity of the lesions in laboratory rabies justifies a postmortem diagnosis of rabies. 5. The pathological anatomy of rabies from fixed virus is the ensemble of all the lesions, both interstitial and parenchymatous, found in the nervous system. 6. The mode of introduction of the fixed virus seems to bear no relation to the intensity or localization of the lesions. 7. In injection by the nasal mucous membrane the olfactory bulb on the corresponding side is more affected than that on the other side. 8. Where the animal is suddenly overwhelmed by the poison the lesions may be of minimum intensity. 9. The variability of intensity of the lesions is to be attributed in large part to the individual resistance of the animal.

(1904, IX., No. 6)

I. Some Practical Deductions from the Refutation of the Neurone Theory. DR. DEBRAY.

1. *Refutation of the Neurone Theory.*—Apart from the anatomical relations described by Dogiel, Apathy and Bethe, the author thinks the following furnish strong arguments against the validity of the neurone theory: We know that when a nerve is cut there is degeneration, not only of its peripheral end but also of its central end and of its cell of origin (retrograde or Nissl degeneration). Also regeneration of the peripheral end has been found possible. Lastly, in amyelic monsters there are nerves, normal in structure and function. Taking it all in all he regards this theory as no longer tenable. Is it a misfortune to have to give it up? He thinks not, being even of the opinion that by rejecting it we are better able to explain certain facts with regard to regeneration and recovery of function of cells, our prognoses, indeed, taking on a more hopeful aspect. If instead of the axone arising by direct budding from a nerve cell, and supplying a definite muscle fiber, gland cell or what not, it is made up from fibrils coming from a nerve net in and around a cell, the constituents of which nerve net may have connections with a number of other cells, nerve impulses would not be dependent upon one cell, but in the event of the injury of this directly connected cell, the more distant ones could take up its task, and by their influence, and help the injured cell may have a chance to recover, or if irreparably damaged its partners may be eventually educated to perform its work. Hence the possibility of massage, electricity, etc. The fact that when a cranial nerve is cut, the rabies from fixed virus does not produce lesions. 2. The vascular and cell author thinks the following conclusions are justified: 1. Experimental

cells of its nuclei are capable of regeneration, while when it is torn out such is not the case, he thinks strongly supports this view, since in the latter instance the breaking up of connections is too widespread to admit of repair. The continuity of the nerve fibrils peripherally, he thinks, throws light upon the process of repair in nerves, since by reflexes from the periphery coming around through other nerve tracts the growth of the neuroblasts from the central end may be stimulated.

(1904, IX., No. 7.)

1. The Solar Syndrome in Spinal Cord Tumor and the Condition of the Lumbo-sacral Cord, Fifty-four Years After Amputation of the leg. DE BUCK.

2. Note on Litigious Lunatics. A. GIRAUD.

1. *Solar Syndrome in Spinal Cord Tumor*.—A lunatic, sixty-five years old, was taken with chronic vomiting, later with diarrhea, and after five months died in marasmus. The gastro-intestinal tract beyond great congestion showed nothing abnormal, but in the spinal cord there was found a glioma about 2-3 mm. in diameter, occupying the right postero-lateral region from the tenth dorsal to the second lumbar segment. The anterior horns, the columns of Clarke, and the zone of entrance of the posterior roots were not affected. The author thinks this accounts for the gastro-intestinal symptoms, which he calls "the solar syndrome," and locates the origin of the abdominal sympathetic, which agrees closely with the findings of other authors. Its fibers seem to leave the cord in the dorsal roots from the sixth to eighth dorsal to the second lumbar, while its centers are higher up in the upper dorsal, and even in the lower cervical segments, in the lateral group of cells, avoiding the anterior horn and the column of Clarke. The same patient, when eleven years old, had his left leg amputated at the middle of the thigh. Careful study of the lumbo-sacral cord showed that the cells in the leg and foot nuclei were all present, but they showed some swelling, slight chromatolysis and ectopia of the nucleus, "reaction at distance."

2. *Litigious Lunatics*.—Note on two cases probably of paranoia querulans, bringing out nothing unusual.

(1904, IX., No. 8.)

1. Experimental Solar Syndromes. LAIGNEL-LAVASTINE.

2. Autogenic Regeneration in Man and the Neurone Theory. G. DURANTE.

3. Eunuchoid Voice in Hemiplegia. J. GRASSET.

4. A New Mandrin for the Esophageal Tube to Facilitate Forced Feeding. SERRIGNY.

1. *Experimental Solar Syndromes*.—The complete ablation of the solar plexus of the dog is a very grave operation. One-half of the animals die within the first twenty-four hours, most of the rest succumb to collapse in four or five days, while a few recover. The symptoms produced by this ablation constitute the paralytic solar syndrome. They may be hyperacute, acute, subacute and chronic. Besides these the author recognizes symptoms due to irritation of the plexus, and in the neighboring organs symptoms of irradiation. The hyperacute paralytic symptoms consist in sudden fall of arterial tension, shown by rapidity and smallness of the pulse, cold extremities, vomiting, bloody diarrhea, anemia and collapse. The acute form is marked by similar symptoms less marked in degree, scanty and dark urine, rich in biliary pigments and indican, and frequently in leucine and tyrosin, seldom in albumin, sugar or acetone. When death occurs there is found intense congestion of all the abdominal viscera except the kidneys, but no peritonitis. The subacute and chronic forms differ only in degree from the above, and are capable of recovery. The

author has kept some dogs deprived of solar plexus for eighteen months, and one female during this time gave birth to three healthy puppies without trouble. With the symptoms noted above the splanchnic nerves seem to have nothing to do, for their resection produces nothing similar. The symptoms of irritation of the plexus (produced by pinching or stroking) consist of intense epigastric pain, constipation and rises of arterial tension. Applying the results observed to human pathology the author thinks that solar symptoms are very evident in certain cases of peritonitis, those of the acute paralytic form occurring in pneumococcic peritonitis, while symptoms of excitation are observed in chronic tubercular peritonitis at the start, giving place later to paralytic symptoms. In saturnine intoxication an example of alternate excitation and paralysis is furnished, while in mucomembranous colitis the picture strongly suggests solar paralysis.

2. *Autogenic Regeneration in Man and the Neurone Theory.*—In a woman in whom the median nerve had been resected from the palm to the upper third of the forearm for a neuroma at the wrist, the author found on autopsy, five years later, that though the ends of the nerve were separated by more than 20 cm., upon each of them there had developed a voluminous amputation neuroma. Microscopical examination of the tumor at the peripheral end showed undoubted nerve fibers, with distinct axis cylinder, and a sheath, which though not staining well by Pal, seemed to be of the nature of myeline. Other fibers more embryonic were represented by fusiform cells or bands of protoplasm, enclosing axis cylinders. The nature of these tubes seemed to preclude the possibility of their having grown in from other nerve trunks. The author thinks that this case strongly supports the results of experimental evidence that the nerves are developed in segments from structures previously existing along their tracks, and are not of necessity outgrowths from centrally located nerve cells. Hence it must be added to the array of facts which militate against the neurone theory. Reviewing some of these he concludes that it is time for us to modify our views, to discard our former conception of the neurone theory as a garment, which, having served its turn, has grown too narrow.

3. *Eunuchoid Voice in Hemiplegia.*—In a woman seventy years old, with a left hemiplegia, the voice had taken on a peculiar high pitch not present prior to the stroke. From the study of the case the author decided that the eunuchoid voice was due to a paralysis of the crico-thyroid muscle, by which the cricoid cartilage not being held firm, the thyro-arytenoids could tighten the vocal cords only after they were much shortened. This was shown by the fact that when the cricoid cartilage was steadied by the hand the low notes were possible. Again, when the crico-thyroid muscle was faradized the pitch of the voice was temporarily lowered.

4. *Mandrin for the Esophageal Tube.*—The author uses a flexible mandrin made of fine steel wire twisted into a spiral. Another steel wire with bulbous ends is arranged to fit inside of the coils of the spiral when still greater rigidity is required.

(1904, IX., No. 9.)

1. Janet's Psycholepsy and the Störch-Foerster Theory. DE BUCK.
2. Sensory Disturbances in Neurasthenic and Melancholic Conditions. DUBOIS.
3. Surgical Treatment of Defective Speech Due to Anatomical Defect in an Epileptic Imbecile. F. LARRIVÉ.

1. *Janet's Psycholepsy and the Störch-Foerster Theory.*—To Janet, psycholepsy and psychesthesia represent two conditions, the one acute



the other chronic, depending upon the fall of what he calls the psychological tension of the psychological potential and of the mental level. Since the functions and acts most related to the present, and to objective reality depend upon the highest psychological tension, these functions and acts are the first to suffer in psycholepsy and psychesthesia, and there is produced in the patients a sense of incompleteness and of depersonalization. He considers the various obsessions and phobias as a secondary effect of this depersonalization, etc. As illustrating his views, Janet cites two cases of epileptics in whom there occurred as an epileptic equivalent a peculiar misty condition, in which, though the patient could see, hear, etc., there existed an insurmountable doubt as to the validity of things seen and heard. Turning from the views of Janet, the author takes up the theory of Wernicke, Störch and Foerster, according to which each perception consists of two elements, the one purely sensorial, the other represented by the parallel organic sensations from the organ or part of the body specially acted upon by the sensorial excitant. These parallel sensations consist chiefly in the perception of the muscular activity constituting the movements, which adapting the sensorial apparatus to the peripheral irritant, are intended to produce the most favorable conditions for perception. To these organic parallel sensations we owe our consciousness of our own personality and its relation to the outside world. If then we entitle the ensemble of organic sensations, from muscles and viscera, which constitute the corporeal personality, the "somatopsyché," the sensations coming from without make up our knowledge of the outside world, the "allopsyché." Hence Wernicke's division of "somatopsychoses" and "allopsychoses," according to whether the patient's perceptions of self, or those of the outside world as related to himself are chiefly disturbed. The author thinks that one of the cases of Janet may be better explained according to this latter view, as instances of disturbance of the somatopsyché in the visual sphere. He next refers to a case described by Foerster as an instance of "a function of the somatopsyché." This case was that of a woman forty-nine years old, who had a sensation of emptiness in the head, and seemed to have lost all bodily sensation, as well as power to recognize persons and things, and who, incapable of any exertion, became a prey to mental anguish and sought relief through suicide. As the author remarks, such conditions of doubt as to the reality of anything are by no means uncommon among the insane. In the explanation of such conditions he thinks the views of Wernicke, Störch and Foerster more rational than those of Janet. That the psycholepsy theory of Janet is entirely false, however, he does not believe. On the contrary it contains a certain amount of truth, and his notion of the lowering of the psychological tension is not incompatible with out anatomical ideas. If there is a perceptive reality there is above it an apperceptive reality, a higher function, and this is what is diminished or disturbed in what Janet calls the "social aboulics." In the function of apperception association plays the most important part, and the nearest to an anatomical explanation of the phenomena under discussion that the author ventures, is to suggest that they may be due to troubles of the association fibers or cells, a view to which Wernicke gives prominence in his text book.

2. *Sensory Disturbances in Neurasthenic and Melancholic Conditions.*—A warning against attributing too great importance to slight sensory and motor disturbances, as pointing to a diagnosis of general paresis, when they are found in persons of middle age showing neurasthenic or melancholic symptoms, with notes on three illustrative cases.

3. *Surgical Treatment of Defective Speech.*—Operation for tie-tongue in a case of an epileptic imbecile, under medico-pedagogical treatment up to that time and unable to pronounce properly. After the operation, under systematic exercises, great improvement occurred.

(1904, IX., No. 10.)

- I. The Ampliation of the Lateral Ventricles in Mental Diseases. L. MARCHAND.

1. *Ampliation of the Lateral Ventricles*.—This article is not suitable for abstraction, on account of the tabular matter of which it is largely composed.

(1904, IX., No. 11.)

- I. Organization of a Service in Mental Medicine in Prisons. E. MASOIN.

1. *Mental Medical Service in Prisons*.—An outline of the method of organization of a service for the examination of criminals suspected of being insane or defective, established in the Belgian prisons since 1892. Among the facts of interest noted by the author are that figures show an apparently steady increase in the frequency of insanity in Belgium. Among prisoners it is much more prevalent than among the general population, the figures (prior to 1890) being 0.156 per cent. for the general public, 1.1 per cent. for prisoners. The author has not found any special form of prisoners' insanity, but has been struck by two facts, first, the frequency among prisoners of insanities with auditory hallucinations, and second, the infrequency of general paresis. Attempting to account for the latter circumstance, he gives figures as to syphilis, etc., but in the end can find no explanation other than that since most of the prisoners are already in confinement by the age of thirty, through the regular life of the prison, they are at the usual age for general paresis preserved from the stress, both mental and physical, which seems to play so important a rôle in the production of this disease.

(1904, IX., No. 12.)

- I. The Functional Duality of Muscle. MILE. I. IOTAYKO.

1. *Functional Duality of Muscle*.—As long ago as 1858 Schiff showed that there were two elements in the muscular contraction, the one quick and of short duration, produced by faradic irritation of the nerves supplying the muscle, the other slow to start and lasting for a longer time, set up by mechanical irritation of the muscle direct, and seen usually immediately after death, when the nerve had already lost its irritability. The first he called the neuro-muscular, the second the idio-muscular contraction. Disputed for many years, his views have of late been strikingly confirmed. A number of authors studying the effects of different drugs upon muscle found that in veratrinized muscle the quick, short contraction was lost, all stimuli, electrical, mechanical and chemical producing a contraction of a more lasting character. It remained for Botazzi, however, to explain the two kinds of contraction, by assuming the presence in muscular fibers of two kinds of elements, an "anisotropic fibrillary" element, and a protoplasmic element, the "sarcoplasm;" the first contracting rapidly and immediately relaxing, the second of slow, but more lasting contractility. The authoress's studies upon veratrinized muscle showed that under the influence of this drug the muscular contraction was resolved into its elements, two separate waves being observed, the first short, the "anisotropic" contraction, the second slower and longer, the "sarcoplasmic" contraction. Hence it seems probable that the difference in character of the contractions of different muscles depends upon the relative proportions of the anisotropic and sarcoplasmic elements which they contain. In the pale striated voluntary muscles the former element predominates, while the smooth muscles contain mainly the sarcoplasm. The anisotropic fibers are acted upon by the faradic current, while the sarcoplasm, responding only to a stimulus acting for an appreciable time, requires the continued current, or a mechanical or chemical irritant. Drawing practical conclusions the authoress thinks that reaction of degeneration is explained by



the fact that in a degenerated muscle the anisotropic elements tends to disappear, the muscle fibers taking on the more embryonic form, the sarcoplasm. Hence the usually predominant anisotropic reaction is lost while that characteristic of the sarcoplasm, no reaction to faradism, slow contraction to galvanism, and greater reaction to the anode than to the cathode, occurs. A proof of this she has obtained by subjecting degenerated muscles to the action of certain drugs, as ammonia, chloroform and saline solutions, under the influence of which the lost faradic irritability could be made to return. The sarcoplastic contraction, while persistent, may be considered as economical, as it does not seem to be accompanied by much fatigue or by increase of temperature. In hysterical and cataleptic contractions the authoress finds the characteristics of sarcoplastic contraction. The above gives only an outline of this interesting paper, which should be consulted in the original by those specially interested.

(1904, IX., Nos. 13 and 14.)

1. Predisposition in the Etiology of Mental Disease. E. MARANDON DE MONTYEL.

1. *Predisposition in the Etiology of Mental Disease.*—In the etiology of mental disease predisposition plays a most important rôle. Without it insanity is very unlikely to develop, even when the exciting causes are in full play. The author during an experience of thirty years has paid great attention to this subject, and here formulates his conclusions. Predisposition to mental disease he finds congenital and acquired. Congenital predisposition occurs in three ways, by direct heredity of a neuropathic constitution, through the fecundating congress, and through the state of the mother during pregnancy. Under the first head the author can only find neuropathy, consanguinity and tuberculosis to be active in the parents. The condition of the parents at the moment of conception has long been recognized as capable of influencing the mental make-up of the offspring. As factors here he finds accidental inebriety, alcoholism, saturnism, tuberculosis, malarial infection and advanced age. As influences affecting the mother during pregnancy, which may give rise to predisposition to insanity, even when the parents are free from such tendency, he finds lively emotions, especially when sudden and terrifying, alcohol, lead, malaria, tuberculosis, abdominal trauma, hard work—especially when necessitating maintenance of a bent position—infectious diseases—especially typhoid fever and the beginning of an abortion, even when non-traumatic. The question as to whether a person born free from predisposition can acquire insanity he answers in the affirmative. The following six causes he finds alone capable of causing such predisposition, and they acting only upon the sound brain cannot immediately produce insanity. These form three groups, an infectious one with typhoid fever and malaria, a toxic group with chronic alcoholism and saturnism, and a physical group with cranial trauma and insolation. Febrile and infectious delirium may be seen in any one predisposed or not, but its characters differ in the two cases, the predisposed showing special tendency to hallucinations and illusions. Tuberculosis, while capable of causing predisposition in the child, when present in the parent, he finds incapable alone of producing insanity in a person previously indisposed to it. The author by no means underestimates the importance of exciting causes, but affirms that even when predisposition is present, without exciting cause, there will be no psychosis. But while predisposition alone may be incapable of producing a true psychosis, it nevertheless leaves its impress upon the character of the individual, and the degenerate is the result. The two fundamental characters of this unfortunate, are insufficiency and disequibration, which gives the coloring, be it ever so variable, through the whole scale, from the idiot upward. Some one or more faculties may be decidedly above the normal, and the



author indeed thinks that many of the great ones of the earth have belonged to this class, for normal persons do things in an average way only, and without those of abnormal or one-sided development few great things would be accomplished. As to the respective types of mental disease, due to congenital and to acquired predisposition, the former he thinks especially produces the psychoses, having little tendency to dementia, such as periodic insanity and paranoia, while in acquired predisposition he has only found the manias, melancholias and confusion.

ALLEN (Trenton.)

#### ARCHIVES DE NEUROLOGIE

(Vol. XVII., 1904, No. 98, February.)

1. Epilepsy: Pathogeny and Therapeutic Indications. ALEXANDRE PARIS.
2. A New Case of General Conjugal Paralysis. A. CULLERRE.
3. Latest Conceptions in Hypnotism and Hysteria. A. CHARPENTIER.

1. *Epilepsy*.—The studies of this author have led him to the conclusion that certain infectious diseases, such as typhoid fever, have a suspensive effect upon epilepsy, and he attributes this to a neutralization or destruction of toxins by other toxins of different origin, which should be associated with the product of secretion. He illustrates this point by citing the case of an epileptic mute who was able to talk during the course of an attack of typhoid fever, but relapsed into his former state after convalescence was established. He has also observed the infrequency of goitre among epileptics, even in those regions where goitre is very prevalent. There would seem to be a marked antithesis between cretinism and epilepsy, as the former is always established before puberty, and the physical and intellectual development of the individual afflicted ceases at that period, while epilepsy, on the contrary, most often makes its first appearance at that age, when the bodily and mental powers receive a new impulse, the glands of internal secretion and the genital organs acquiring a relatively intense functional activity. What we know of the development of certain glands in the cretin—such as the thyroid body, ovaries or testicles—and the connection which exists between them and intellectual development, the genic stimulation, and the insufficiency of those glands, gives us ground for attributing that special stimulation which appears at puberty to an increase of functional activity of the thyroid corpus, of the ovaries and the testicles. It is an absolutely logical deduction and of the greatest importance, for it will aid us to assign their proper importance to the thyroid body and genital glands in the pathogeny and evolution of epilepsy. The marked antithesis between cretinism and epilepsy may be observed in the behavior of the subjects, the cretin being harmless, apathic and inert, while the epileptic is only too often a most dangerous member of society. From this we might be led to conclude that the causes of the two conditions are diametrically opposed. A summary of the third subdivision is in part: Epilepsy is less grave in goitrous subjects; aggravation of epilepsy by the ingestion of fresh thyroid corpus or of thyroïdine; connection of epilepsy with the principal phases of genital life in woman, puberty, menstruation and the menopause; secondary influence of the genital glands in the pathogeny of epilepsy. It has been repeatedly observed that epilepsy develops less and less from middle age to the critical age, and it seems then very certain that a rôle ought to be attributed to the evolution of the glands of the genital organs in the pathogeny of epilepsy. (To be continued.)

2. *General Conjugal Paralysis*.—The report of the case of a widow, fifty years old, whose husband had died two and one-half years before of cerebral attacks. Her symptoms were maniacal agitation, marked loquacity, erotism, satisfaction, etc. Her husband had been a lighthouse keeper, of regular habits, no alcoholism nor syphilis as far as could be learned. The patient had been three times pregnant, but had always miscarried. The

final illness of the husband lasted five years, and he had gradually fallen into complete intellectual and physical dechéance. This double case, says the author, constitutes a new fact of conjugal general paralysis; an attentive study of the two cases must lead almost conclusively to syphilis as in the antecedent history of both patients. The inability of the wife to bring pregnancy to a successful termination, and the presence of the Argyll-Robertson pupil in the husband are both facts of the highest significance. The infection of the husband probably preceded the marriage by some years, that of the wife was most likely coincident with the first sexual connections.

3. *Latest Conceptions in Hypnotism and Hysteria*.—This is a long critical review of the latest developments in the conceptions of hypnotism and hysteria. The conclusions are as follows: (1) In the hypnotic state, as in hysteria, it is the mental state of the subject which is abnormal, it is upon the *ego* that suggestions or persuasions act. (2) In the hypnotic state, as well as in hysteria, the subject can realize only those phenomena which the will and the imagination are able to realize in the normal state. Thus, hypnotic or hysterical paralyses, contractions or disturbances of sensibility have certain characteristics which sharply differentiate them from the same manifestations arising from organic lesions, which the normal *ego* is unable to reproduce. (3) Certain morbid phenomena which coincidentally have been observed in hysterical subjects, have been wrongly designated as hysterical. The term hysteria has been made much too inclusive. A careful revision of the meaning of the term would weed out many manifestations which are now classed under this head, and would establish the fact that hypnotic suggestion is able to cure hysterical manifestations only.

(Vol. XVII., 1904, No. 99, March.)

1. Condition of the Fundus of the Eye in General Paralytics. KERAVAL and DANJEAN.
2. Epilepsy: Pathogony and Therapeutic Indications (continued). ALEXANDRE PARIS.

1. *Fundus of the Eye in Paralytics*.—The authors report forty-one observations made at the asylum of Armentières. Their conclusions are as follows: (1) In forty-one female paralytics thirteen were found to have normal, or probably normal, papillas. (2) Twenty-one paralytics had certain papillary lesions of the same order as those cases upon which the same authors have previously reported. (3) Leaving out those seven observations where there were lesions of the fundus of the eye, independent of general paralysis, we obtain in round numbers a percentage of thirty-eight in the normal state, and 61 per cent. having lesions of the eye of paralytic origin.

2. *Epilepsy*.—The author discusses his theory of the relation of the development of the thyroid body to epilepsy, and concludes that epilepsy is the expression of a disproportion between the original constitution of the sensibility and impressibility of the encephalic nervous centers and their habitual stimulants emanating from the glandular organs, which assume the continuity and the fixity of species, that is, reproduction and regular individual development; ovaries and testicles which not only assure reproduction by the association of their secretions, but which, by a certain exciting action upon the nervous centers, in some sort complementary to the function of the thyroid body, excite to reproduction. It is evidently the especial function of the thyroid body to preserve that stimulation of the nervous centers, which presides at our regular development, for the maintenance and coördination of the functional activity of our organs. If the functional activity of these glands be too great, or elimination is insufficient, so that the accumulation of their products is abnormal, with consequent excitation of the nervous system, the result will be epileptic



manifestations, if these nerve centers have the especial impressibility of what may be called an "epileptic constitution." If the origin of epilepsy can be thus explained, the cure of this condition will soon be among therapeutic possibilities. The aim will then be: (1) To diminish the meningo-encephalic excitability. (2) To moderate the functional activity of the thyroid and genital glands. (3) To assure the regular elimination of the secretions of these glands by preventing accumulation in the organism. (4) To prevent all the complementary causes of meningo-encephalic excitation, the development of accidental accumulations of toxins, etc. The clinical observations of the author have already shown very happy results from efforts made in the directions outlined.

(Vol. XVII., No. 100, 1904, April.)

1. Localization of Cancer Upon the Nervous System. F. RAYMOND.
2. Lead Paralysis of the Partial Type of Aran-Duchenne. MERKLEN and GUIARD.

1. *Localization of Cancer*.—The author passes in review the principal clinical forms of attack upon the peripheric nervous system by cancer. "These divers points," he says, "have been the object of interesting researches on the part of two of my pupils, Oberthür and Monseaux. It is in part upon the results of their labors that I have based this article." The complication of the peripheric nervous system to which cancerous affections may give rise are of two orders. As Kippel has very judiciously remarked, "Cancer is at once a tumor and a cachexy. It may injure the nervous organs as a tumor, that is directly, or it may act upon them indirectly, by drawing them into a state of dyscrasy and complete intoxication. The two modes of action usually combine in the same subject, but not to such extent that one may say in all cases, and we ought to distinguish carefully the accidents due to compression and invasion of the nervous trunks, veritable mechanical accidents, processes of toxic order, disclosing cancerous auto-intoxication." As to symptomatology, the author says, "It is chiefly by the sensitive elements that you will be influenced. Each time you meet with those atrocious, constructive throbbing pains radiating in the limbs; each time the medullary symptoms are not those to direct you; when you have fully eliminated tabes you will think of radicle carinosis. You will also often be put upon the right path by the general condition of the patient, by the knowledge of heredity and personal antecedents. You will be aided if you discover an easily accessible tumor, or an operative cicatrice, but often also it will be only after a thorough examination of all the organs, liver, lungs, suprarenal capsules, uterus, prostate, etc., that you will be brought to the diagnosis and the discovery of a latent cancer will be an enlightening revelation. Frankly, although the diagnosis is sometimes easy, it is much more apt to be extremely difficult. Hysteria, lumbago( neuralgia, sciatica, hydatid cysts, aneurisms of the aorta, and especially pachymeningitis, syphilis, tuberculosis of the spine, tumors of the nerves, may furnish a sensory and motor complex that may cause error in a superficial examination. \* \* \* To speak of treatment is to admit curative impotency. \* \* \* Morphine and its preparations produce some temporary relief."

2. *Lead Poisoning*.—The authors report a case, which they say, while not unique of its kind, still presents a certain interest. It is a case of lead poisoning, extremely limited, of localization, of differential diagnosis and obscure etiology, as well as capable of almost complete cure. Cases of saturnine paralysis affecting but a small number of muscles are not very frequent, and in the presence of such a rare form the clinician may often feel some hesitation. In the case under consideration only the thenar eminence and the interosseous were affected, but that in so predominant a manner as to justify the condition being considered a modification of the Aran-Duchenne classic type. The Aran-Duchenne type is very rare, and



the authors state that they know no rules applicable to a modification of that condition. The case was that of a man thirty-five years old, whose occupation compelled him to handle fabrics which were dyed with colors containing salts and lead. He experienced numbness and a sensation of cold in the two last fingers of the right hand, and there was evident atrophy of the thenar eminence. It is the opinion of these writers that direct absorption of the skin plays the principal part in causation. Canuet has poisoned dogs by plunging them in a bath of acetate of lead, and lead poisoning has also been caused by wound dressings, which have lead as a basis. The symptoms are by Moebius attributed in great part to habitual compression of the muscles and their enlargement by the manual labor of a particular trade, as saturnine paralysis of the type Aran-Duchenne is met with only in those employed in certain trades.

(Vol. XVII., 1904, No. 101, May.)

1. Ocular Symptoms in General Paralysis of the Insane. JOFFROY.

1. *Ocular Symptoms in General Paralysis of the Insane.*—This is an excellent clinical lecture on this subject, and reviews these symptoms, emphasizing especially their diagnostic aid in the early stages of paresis. On the psychic symptoms alone we can not rely. They are often insufficiently characteristic at a period when early diagnosis is important. The same may be said of the somatic symptoms, the peculiar disturbances of speech and the reflexes. Joffroy shows an appreciation of cyto-diagnosis of the cerebro-spinal fluid, but recognizes that it is not unattended with inconvenience and difficulty, and is not invariably satisfactory. He has studied the ocular changes in 227 cases of paresis. His examinations were made with great care at the time of first admission, and in the majority of the cases, therefore, in the primary stage of the disease. Out of 227 cases, 212 presented ocular disturbances, and the remaining fifteen would probably have shown them at a later period, but, as a rule, only one examination was made in each case, and that upon admission. The iris is the part of the eye chiefly affected; in its dimensions, form, or mobility (either to light or accommodation) though, of course, in lesser frequency other ocular abnormalities may be present. *Inequality of the pupils* (Baillarger) was found 144 times out of 227 cases; to this must be added complete double mydriasis twenty-six times, and extreme double myosis twenty-nine times, *i. e.*, there was pathologic modification in dimensions of the pupils in 87 per cent. of his cases. *Irregularity in form of the iris.* Departure from the normal circular form of the iris is very frequent. Care must be taken to exclude synechiae, traces of previous specific iritis. Both pupils were changed in shape, irregular shape (not circular) ninety-three times out of 125 examinations, monocular deformity was found eight times. In two cases of pupillar deformity there was no abolition of the light reflex, but in both of these cases this reflex disappeared later. Deformity of the pupils like the Argyll-Robertson phenomenon is not a symptom found exclusively in paresis, but like the latter occurs in syphilis and in tabes. Joffroy, however, thinks it often occurs before the disappearance of the pupillar light reaction, and is in a way the precursor, or the equivalent, of the latter. The iris may be involved in its function. The iris changes its size—dilates or contracts according as the eye is placed in shadows or in a bright light. This constitutes the light reflex. The power which the eye possesses of seeing an object clearly and instantaneously in all points of space between the near and far points varies for each individual, and constitutes for him the act of accommodation, the pupillar aperture growing smaller the more the near point is approached. This variation in the size of the pupillar opening with the distance of the object observed is due to the influence of the accommodation reflex. In paresis (also tabes) both of these reflexes may be diminished or completely abolished, but in a very unequal manner. The light reflex is frequently almost constantly changed,

the accommodation reflex rarely. The loss of the former with the coincident persistence of the latter is the Argyll-Robertson phenomenon.

The author emphasizes the difficulty of distinguishing between the two, and points to the fact that unless our examination be carefully made an accommodation reflex will be obtained which will be erroneously considered a light reflex, and thus when the latter may be really absent, the very valuable diagnostic aid afforded by the abolition of the light reflex is lost. He gives his method of procedure, the object of which is to exclude the accommodation reflex. If the examiner stands in front of the patient and alternately shades and illuminates the eye, or if the patient be made to look at a bright light in front of him the patient will accommodate to the point or object in front of him. His method of procedure consists in brief in the illumination of the eyes from a source of light behind the patient. The patient is made to read the letters on a test chart (if his mental condition permits) at a distance of four to six meters, which relaxes the accommodation. The examiner stands at one side, but not in front of the patient, and the light is reflected into the eye by a mirror. Thus the light reflex may be obtained surely isolated from the accommodation reflex. Another method is to place the patient with his back to a window, and have him fix on an object at a distance of about five meters. The size of the pupils is thus observed, whereupon the patient's face is turned to the window, and he is told to look at a distance. If the light reflex is present the size of the pupils should be less than when the back was turned to the window. Joffroy found the light reflex affected in 75 per cent. of his cases as follows: Abolished both sides 103 times out of 227; abolished one side and weak on the other fourteen times; weak on both sides thirty-five times; abolished one side and normal on the other nine times; weak on one side and normal on the other ten times. He also calls attention to the *progressive weakness* of the light reflex as a diagnostic sign. He has watched this phenomenon repeatedly, until the weakness finally gives place to complete abolition, and he considers this progressive weakness of equal value in the diagnosis with the Argyll sign. During complete remissions of the malady he has also seen the light reflex improve in quality, only to become weakened or abolished when a relapse intervenes. The *accommodation reflex*, according to Joffroy, is affected but very rarely, and generally not early in the disease. Accommodation itself is very uncommonly affected. Among other ocular disturbances alleged to occur frequently in paresis is ophthalmoplegia interna with which the paralysis of accommodation is supposed naturally to be associated, but Joffroy never found paralysis of the third nerve except in rare instances, and at that late in the course of the disease. Paralysis of other ocular muscles is equally rare. Where there is external ophthalmoplegia, or a paralysis of the third with paralysis of accommodation, tabes should be suspected. Keraval and Raviart report very frequent changes in the fundus in paresis forty-two times out of fifty-one cases. Joffroy agrees with Gowers and Ballet that alterations of the fundus are very infrequent. Joffroy found changes in 12 per cent. of his 227 cases. Changes in the visual field were reported as commonly occurring by Reznikow. Joffroy cannot confirm this; even when the mental state permits such an examination he found reduction of the range of vision quite infrequently. In conclusion Joffroy states that while much may be hoped in the future from examinations of the cerebro-spinal fluid he still thinks that alterations in the light reflex, due care being taken in examination, is one of the most valuable early signs in the diagnosis of progressive paralysis. This alteration in the pupillar response to light may consist merely in a weakness or sluggishness which is always progressive toward complete disappearance, or in complete abolition. With this alteration in the light response there is most frequently a persistence of the normal accommodation reflex. Of great value also is the determination of irregularity in the contour of the pupil.

ALLEN (Trenton.)

## Book Reviews

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UNCONSCIOUS THERAPEUTICS; OR, THE PERSONALITY OF THE PHYSICIAN. By Alfred Schofield, M.D., M.R.C.S., etc. P. Blakiston's Son & Co., Philadelphia.

We once heard of an old professor in one of the great medical schools who was in the habit of remarking to his classes: "Gentlemen, the practice of medicine is one part skill and knowledge and ninety-nine parts *savoir faire*." This is perhaps putting it a little strongly, but that the personality of the physician has far more to do with his success than his professional training or natural ability is a fact quite generally recognized inside the profession as well as out. It has been the aim of the author of *Unconscious Therapeutics* to drive home this truth, and the result of his labors is a readable little volume, which many a medical man may peruse with pleasure as well as profit. Psychotherapy has been very generally left in the hands of devotees of religious cults and quacks and charlatans generally, but it is the opinion of Dr. Schofield that its application can be made by every practitioner with benefit alike to his patients and himself, and he advocates scientific instruction in this much neglected branch that students aiming to devote their lives to the practice of medicine may recognize "the power for good or evil that resides in the doctor himself, alike in causing, aggravating and curing disease. It is not that their practice or prescriptions have to be radically altered, it is not that their text-books are to be cast aside, but it is that everywhere, and at all times, they shall have constantly before them the two questions: 'What part does mind play in causing this disease?' and 'How far can it be made to assist in its cure?'" The book may be recommended especially to those members of the profession who aim to give especial attention to mental and psychical states, but it also contains much that would be of value to any practitioner, whether his career is just opening before him, or the last milestone is almost in sight.

POPE.

JAHRESBERICHT UEBER DIE LEISTUNGEN UND FORTSCHRITTE AUF DEM GEBIETE DER NEUROLOGIE UND PSYCHIATRIE. E. FLATAU, E. MENDEL and L. JACOBSON. VII. Jahrgang. Bericht über das Jahr, 1903. Erste Hälfte. S. P. Karger, Berlin, Germany.

We welcome the early appearance of Karger's *Year Book of Neurology and Psychiatry*. This has been made possible by getting the book out in two parts.

In this the first half of 600 pages the arrangements of previous years are maintained. There are practically no changes in the staff of editors.

We maintain, as in previous reviews, that no worker in the field can get along without this Jahresbericht. It is the most complete published, and by no amount of work by private secretary, by paid assistants, working in large libraries, or by special literary bureaus, can one commence to get the essential things from literature as by the use of this year book. Other summaries are the flimsiest ghosts; this volume is flesh and blood. It is worth double the money as a time saver alone.

We desire to call attention to one feature that we believe the editors might save time and expense, so far as American literature is concerned. The reports from Society Proceedings (Sitzungsbericht) could well be omitted, as with us the papers read are invariably published in full elsewhere, and the society reports are notoriously inaccurate and misleading. We would also like to see a fuller analysis of the various *Theses*. These are usually unobtainable, in this country at least, and are not usually to be



found in any save the large libraries of Washington, New York or Philadelphia.

We are pleased to note that the abstracts of articles in the impossible languages, such as Bohemian, Russian, Polish, Hungarian, etc., are full. We again repeat that abstracts from the more current periodical literature of the Teutonic and Romance languages can be shortened to advantage, if these others are made more complete, as most of the periodicals in the German and French, are comparatively easy to obtain and to decipher.

JELLIFFE.

LEHRBUCH DER SPEZIELLEN PSYCHIATRIE FÜR STUDIERENDE UND AERZTE.  
VON DR. ALEXANDER PILCZ. Docent f. Psychiatrie und Neurologie  
an der Wiener Universität. Franz Deuticke, Leipzig und Wien.

This is a thoroughly practical little text-book. It does not indulge in many hair splitting distinctions; its descriptions are terse and very realistic, and taken all in all it is a useful antidote to many of the larger and more psychological treatises. The author's classification is as follows:—

I. Acute Functional Insanities, under which he classes Melancholia, Mania, Amentia and Acute Delirium. II. Chronic Functional Insanities, with Paranoia and Periodical Insanity. III. Alcoholic Insanities, with its varieties. IV. The Dementias, with Paralytic Dementia, Senile Dementia, Dementia from Disease of Brain, and Dementia Præcox. V. Thyroid Insanities. VI. Psychoses of the Major Neuroses, Epileptic and Hysterical Insanity. VII. Evolution Insanities, Idiocy and Imbecility, and VIII., Pathological Degenerations, Impulsions, Sexual Psychopathias, etc.

While from the standpoint of simplicity the work is a useful one for beginners, we cannot feel that for psychiatrists it will aid much in the progress of the science. It unquestionably will aid the teacher, as pedagogically the work has many good points.

JELLIFFE.

## News and Notes

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**THE KANSAS STATE HOSPITAL FOR EPILEPTICS OPENS.**—The first group of cottages in the female department of the Kansas State Hospital for Epileptics at Parsons was opened for patients October 17, when eighty-eight patients were transferred from the State hospitals for the insane. The male epileptics were transferred at the opening of the institution last year. The entire epileptic population of the State hospitals for the insane has now been removed to Parsons. The hospital has at present 265 patients, with a total capacity of 400. It is built on the cottage plan and is designed to accommodate 800 to 1,000 patients when completed. The construction and arrangement of the buildings afford ample opportunity for classification. Both sane and insane epileptics are received for treatment.

**THE CHAIR OF NERVOUS AND MENTAL DISEASES AT THE MEDICO-CHIRURGICAL COLLEGE IN PHILADELPHIA.**—Dr. William Pickett has been elected professor of nervous and mental diseases in the Medico-Chirurgical College. Dr. Pickett was born in Meadville; graduated from Allegheny College in 1892, and from the Jefferson Medical College in 1895. Since his graduation, Dr. Pickett has served as resident physician, registrar to the neurological department, and official examiner of the insane at the Philadelphia General Hospital. Among the contributions to the literature of neurology the credit of first describing the infraspinal reflex belongs to Pickett.

**FACULTY OF MEDICINE OF MESSINA.**—Dr. Silvio Tonnini, professor extraordinary of psychiatry, has been appointed professor ordinary in the above institution.

**FOREIGN APPOINTMENTS.**—Dr. Scheven has been appointed privat docent in psychiatry at Rostock.

Prof. E. Schultze, of Bonn, has been appointed professor in psychiatry and neurology at Greifswald.

Prof. A. Westphal, A.O., professor and director of the psychiatric clinic at Greifswald, has had a call to Bonn.

Dr. George Koester, privat docent at Leipzig, has been appointed extraordinary professor.

**NEW OFFICERS EPILEPSY ASSOCIATION.**—At the fourth annual meeting of the National Association for the Study of Epilepsy, held in Boston, November 22, the following officers were elected for the coming year: President, Dr. W. P. Spratling, of Sonoma, N. Y.; First Vice-President, Hon. W. P. Letchworth, LL.D., of Portage, N. Y.; Second Vice-President, Dr. Max Mailhouse, of New Haven, Conn.; Secretary and Treasurer, Dr. Everett Flood, of Palmer, Mass. Chairman of the Executive Committee, Dr. William N. Bullard, of Boston.

The next meeting will be held in New York City in November, 1905.

**THE AMERICAN NEUROLOGICAL ASSOCIATION.**—This society, at its annual meeting, held this year in St. Louis, elected the following officers: President, Dr. William G. Spiller, of Philadelphia; Vice-Presidents, Drs. Philip Zenner, of Cincinnati, and William N. Bullard, of Boston; Secretary, Dr. G. M. Hammond, of New York. The next meeting will be held in Philadelphia, in 1905.

THE RELATION OF SEX TO BRAIN ACTIVITY.—Dr. J. de Körösky, Director of Municipal Statistics at Buda Pest, Hungary, recently read a paper before the British Medical Association on the above subject, drawing for his material on twenty-seven years of study among the school children of that city. During the first school years there is an equality of mind, but this is followed by an increase in mental activity among girls, so that at the end of the school period all tests favored the female sex. His conclusions are that feminine intelligence develops more rapidly, but probably will not sustain itself for so long as the masculine. This he deduces from the fact that men have always done more of the world's work, even down to old age, while women leave the ranks at a comparatively early date.

IMPROVEMENTS AT SCHUYLKILL INSANE ASYLUM.—This institution, so frequently denounced by the Pennsylvania State Board of Charities, and once described in court as being "worse than Dante's Inferno," is to be refitted. Plans have been asked for describing a suitable addition to the present structure, and it is desired that such addition shall secure more room for beds, etc., than is now available, and also a better classification of neurotic ailments than is now practicable.

REPORT OF NORRISTOWN HOSPITAL FOR THE INSANE.—The annual report of the State Hospital for the Insane at Norristown, Penn., has been issued, and shows an enrollment of 1,175 patients. Of these 17 are attendants in the wards and refectory, and 83 are away on parole. Last year there were 216 admissions, and 76 were discharged as restored. Ten improved and 3 were apparently not benefited. The death rate was 5.8 per cent., the lowest figure reached in fifteen years.

PSYCHOSES AMONG SOLDIERS.—The hardships and bad food, as well as the nervous tension caused by the ever-present danger, all predispose the soldier in the field to nervous derangements and insanity, says the *Globe*. Russian physicians report that in the wars with both Turkey and China a large number of acute psychoses were met with, and many men who had gone mad were shot that they might not fall into the hands of Chinese torturers. During the present war, says the *British Medical Journal*, many cases of delirium have been observed in the garrison at Port Arthur. On board the Manchuria, when taken by the Japanese, were found fourteen insane soldiers.

ENGLISH LUNACY COMMISSION REPORTS.—The history of the work of this commission is brought down to January 1, 1904, in a voluminous essay of 500 pages, which is full of statistics, but parts of which, nevertheless, make interesting reading. The number of certified insane shows an excess of 3,235 over that of last year. In the decade of 1893 to 1903 the average yearly increase was 2,513. As regards the ratio of insane to the total population, last year it was 34.14 against 34.71 at present reported. The total increase in accordance with the population ratio of the past ten years was 13.1 per cent.; the increase in the insane, 27.3 per cent. The report emphasizes the prominent influence of alcohol among the physical causes of insanity, a fact which will no doubt please the ultra temperance element of both England and America.

DR. A. E. MACDONALD retired from the superintendency of the Manhattan State Hospital, East, Ward's Island, New York, on October 1, 1904, after which date and until further notice, all communications relating to the hospital should be addressed to Dr. J. T. W. Rowe, acting superintendent. Dr. Macdonald's personal address is Columbia Court, 431 Riverside Avenue, corner of 115th Street, New York City.



CARE OF THE INSANE IN PENNSYLVANIA.—The Association of Superintendents and Trustees of Institutions for the Insane of Pennsylvania, held a meeting in the South Mountain Asylum, on September 22. It was very gratifying to the members of the association to find an attendance of twenty-eight, the largest thus far in its history. The association was well pleased with the manner of conducting the South Mountain institution, and was also surprised to find that almost every inmate supports himself by labor on the farm belonging to the asylum. Papers were read by Drs. R. H. Chase and J. M. Murdoch. Officers were elected as follows: President, Dr. J. B. Chapin, of Philadelphia; Vice-President, Dr. H. B. Meredith, of Danville; Secretary, Dr. M. S. Guth, of Warren. The next meeting will be held at Polk, in May, 1905.

DR. GEORGE F. BUTLER has severed his connection with the Alma Springs Sanitarium, at Alma, Mich., where for nearly five years he has been Medical Superintendent, and has returned to Chicago, where he will henceforth limit his practice strictly to internal medicine. He will fill the chairs of professor of therapeutics in the College of Physicians and Surgeons, and professor of medicine in the Dearborn Medical College; he has also been appointed as one of the attending physicians in the Samaritan Hospital. Dr. Butler will continue to edit and publish his magazine, *How to Live*, and it is understood that he has underway another medical work for a Philadelphia medical book publisher.

THE FOURTH SESSION of the Association of Assistant Physicians of the Ohio State Hospitals was held at the Columbus State Hospital, Columbus, Ohio, October 5 and 6, 1904.

*Afternoon Meeting, October 5.*—Dr. George Stockton, Superintendent of the Columbus State Hospital, made a short address of welcome.

William W. Richardson, of Columbus, presented a patient, and gave full clinical details, in which a diagnosis of syringomyelia had been made.

Isabel A. Bradley, Columbus, presented three brain tumors. Two were sarcomas, involving the left frontal lobes. The third was a large glioma, occupying both lateral ventricles and involving the corpus callosum, fornix and septum lucidum.

E. E. Gaver, Columbus, gave a brief report of eight cases of tuberculosis treated in the open air colony at the Columbus State Hospital.

Guy H. Williams, Columbus, showed the pathological specimens from a case of sudden death, found at autopsy to be due to an aneurism of the heart.

C. T. Harding, Jr., Columbus, exhibited a patient, nine years old, with slight hereditary predisposition, showing psychical attacks varying from short periods of depression to spells of subconsciousness of several hours' duration, in which the child acts very differently from her normal self. The attacks are preceded and accompanied by slight rise of temperature, excessive action of the heart, and a feeling of sickness over the sternum. A tentative diagnosis of psychical epilepsy is made.

Ralph W. Holmes, Gallipolis, read a paper entitled "Clinical Observations of Status Epilepticus." This paper was discussed by Drs. E. E. Gaver, F. D. Ferneau, G. T. Harding, Jr., I. A. Brady and R. W. Holmes.

Guy H. Williams, Columbus, read a paper entitled "Arterio-sclerosis of the Brain, with Report of Case with Autopsy." Drs. N. H. Young, G. T. Harding, Jr., E. E. Gaver, W. H. Pritchard, I. A. Bradley and G. H. Williams discussed the paper.

*Morning Meeting, October 6.*—Mary E. Cadwallader, Dayton, read a paper entitled "A Report of Two Cases of Insanity of Pregnancy and Puerperium." The discussion was by Drs. Ferneau, Harding and Cadwallader.

Paper: "Laboratory Aids in the Rapid Diagnosis of Hydrophobia," by Dr. Walter H. Buhlig, Gallipolis, was read. Discussion by Drs. I. A. Bradley, K. S. West, F. D. Ferneau, R. W. Holmes and W. H. Pritchard.

Following the completion of the programme the business of the Association was taken up. Dr. Isabel A. Bradley, Columbus, reported the work of the Dietary Committee. This committee was enlarged to include one member from each State Hospital. Dr. E. E. Gaver, Columbus, reported the work of the Legislative Committee. Dr. R. W. Holmes, Gallipolis, chairman of special committee to represent the Association at the Cleveland meeting of the Ohio State Medical Association, reported the passage by that body of the following resolution: Resolved, That the Ohio State Medical Association hereby expresses its approval and endorsement of the object and work of the Association of assistant physicians of the Ohio State hospitals.

Drs. W. C. Kendig and J. W. Mann, of Longview Hospital, Cincinnati, and Drs. E. B. Morrison and Arthur G. Helmick, Gallipolis, were elected to active membership.

The next session will be held at the Dayton State Hospital, Dayton, Ohio, April 5 and 6, 1905.

RALPH W. HOLMES, Secretary







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